United States Government **Department of Energy**

memorandum

Idaho Operations Office

Date: MAY 25 1999

Subject: Transmittal of EMSP Multi-Year Program Plan for Signature - (LD-99-181)

To: Mark A. Gilbertson, Director
Office of Science and Risk Policy
DOE-HQ, EM-52, 3E-066/FORS

This office is pleased to forward to you the final version of the Environmental Management Science Program Multi-Year Program Plan for your signature. We have incorporated comments from both Environmental Management and Science personnel. We believe the document will provide a sound basis for program operation of the EMSP.

Please coordinate approval with Dr. Roland F. Hirsch of the Office of Science. Please contact me at (208) 526-2460, if we can be of further assistance.

Thomas E. Williams
EMSP Program Director

Attachment

cc: (w/o att.)
Arnold R. Gritzke, EM-52
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Environmental Management Science Program Fiscal Year 1999-2003 Multi-Year Program Plan

Department of Energy
Office of Environmental Management

Environmental Management Science Program
Fiscal Year 1999-2003
Multi-Year Program Plan

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Office of Environmental Management

Published May 1999

ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM

FY 1999-2003 MULTI-YEAR PROGRAM PLAN

SIGNATURE PAGE

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CONTENTS

1. EXECUTIVE SUMMARY

This Multi-Year Program Plan (MYPP) defines the program strategies and activities required to meet the strategic goals and objectives defined in the R&D Program Plan, the S&T Strategic Plan, and the annual appropriations language. The MYPPs of the Office of Science & Technology serve as a coordination tool for integrating activities across the various EM-50 programs including the Environmental Management Science Program (EMSP), Focus Areas, technology integration, risk, and cross cuts. This MYPP will emphasize research transition activities from basic research sponsored by EMSP to applied research sponsored by the Focus Areas, as well as activities to ensure research results are documented and captured for future use. In addition, because of the EMSP's close partnership with the Office of Science, interactions and communication with the research community is also addressed.

The MYPP is intended to provide significant detail on the current year and out-year program (up to a five year maximum). In general, the MYPP does not address policies or issues covered in higher level planning documents, nor does it discuss individual work assignments.

1.1 Participants

The U.S. Department of Energy (DOE) EMSP is a collaborative partnership between the DOE Office of Environmental Management (DOE-EM) and the DOE Office of Science (DOE-SC) to sponsor basic science research that will lead to reduction of the costs and risks associated with cleaning up the nation's nuclear complex. The DOE Idaho Operations Office (DOE-ID) was selected to work as the lead field office in partnership with the Office of Science and Technology's (EM-50) Office of Science and Risk Policy (OSRP EM-52). Since 1996, the EMSP research funds have been awarded annually to researchers from DOE national laboratories, governmental and private laboratories, universities, research institutions, and industries from around the world.

1.2 Budget

Funding levels for the EMSP are summarized in the figure below. The EMSP was mandated by Congress and received recommendations from several external advisory groups such as the National Academy of Sciences and the Secretary of Energy Advisory Board. Figure 1 on the next page shows the yearly budgets for this program. Figures for Fiscal Year 1999 and beyond are estimated.

EM Science Program Dollars in Millions	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	Total
Number of Awards by FY	136	66	33	46				281
Funding Levels by FY								
FY 1996	$ 46	$ 23	$ 25	$ 20				$ 114
FY 1997		$ 21	$ 9	$ 8	$ 8			$ 46
FY 1998			$ 10	$ 2	$ 11	$ 7		$ 30
FY 1999				$ 14	$ 11	$ 9	$ 8	$ 42
FY 2000								$ -
Management & Stategic Development	$ 4	$ 4	$ 4	$ 3	$ 2	$ 2	$ 2	
Total	$ 50	$ 48	$ 48	$ 47	$ 32	$ 18	$ 10	

Figure 1. EM Science Program.

1.3 Technical and Programmatic Strategy

The mission of the EMSP is to identify and fund basic science research that results in transformational or breakthrough approaches for solving DOE's environmental problems. This involves identifying and soliciting relevant problems that can be influenced by science; selecting the best research proposals for funding; monitoring the research; and facilitating interaction between researchers, EM Focus Areas and Crosscutting programs (referred to as FAs); and site end-users to ensure the research will be utilized as it progresses. The EMSP core processes that achieve this mission include the following:

(1) Identify and prioritize research needs and opportunities,
(2) Develop solicitations,
(3) Select research projects,
(4) Manage and analyze the portfolio,
(5) Monitor the research,
(6) Move the research towards technical maturity.

Research projects are solicited and selected according to scientific merit and program needs of the DOE sites that can be influenced by science. Research awardees conduct the research and interface with Focus Area representatives at multiple points in the process. Research is integrated into technology development activities of the Focus Areas and site end-users through a number of facilitated interactions such as topical workshops, national workshops, and other EM program functions.

1.4 Proposed Activities

Activities that will be occurring over the next year include:

- Targeted solicitations/awards for research on DOE issues concerning the Subsurface Contamination/Vadose Zone
- 6 Topical Workshops
- Transfer of appropriate mature research to Focus Areas, Crosscut, industry, or other research sources
- Identification and prioritization of current research needs
- Communication of research results to interested parties
- Refinement of a Multi-Year Program Plan and communications plan
- Publishing of an EMSP annual report
- Supporting the development of the Paths to Closure document
- Supporting the Environmental Management Research and Development Program Plan
- Supporting Environmental Quality portfolio strategic planning
- Development and issuance of the EMSP final report guidance for EMSP researchers.

There are no calls for proposals planned in FY 2000 based on current budget projections. Solicitations are anticipated to resume in FY2001 which will be based on the evaluation of site-specific needs and a gap analysis defining the extent to which completed projects or nearly completed projects are expected to meet those needs. The EMSP will work closely with Site Technology Coordination Groups (STCGs), Focus Areas, and relevant divisions in the Office of Science to identify research needs from across the DOE Complex. Research needs will be evaluated against the current EMSP research project portfolio. The EMSP will work to coordinate with the Focus Areas to assess needs, identify research gaps, prioritize areas of research, and identify appropriate areas for future calls for proposals. Future calls will also involve the Focus Areas in solicitation development and proposal review.

Integration activities of future calls will include involvement with the Focus Areas in the fields of research needs identification, participation in appropriate areas of the solicitation and review process, and research transfer. It is anticipated that the Focus Areas will develop budgets in future years, which will also incorporate research transfer and applied research.

2. PROGRAM BACKGROUND

2.1 Problem Definition

In DOE/EM-0362 *"Accelerating Clean-up: Paths to Closure"* (hereinafter referred to as *"Paths to Closure"*), DOE estimates that clean-up of the weapons complex will cost approximately $147 billion and take several decades to complete. The immensity of the clean-up effort in the face of decreasing federal funding accentuates the need for research. The EMSP funds basic research relevant to EM's clean-up mission.

2.2 Need for EMSP

The EMSP was established in response to a mandate from Congress in the FY1996 Energy and Water Development Appropriations Act. Congress directed DOE to provide "sufficient attention and resources to longer-term basic science research which needs to be done to ultimately reduce clean-up costs" and directed DOE to "develop a program that takes advantage of laboratory and university expertise" and to "seek new and innovative clean-up methods to replace current conventional approaches which are often costly and ineffective."

A major impetus for the EMSP was the special report to the Secretary of Energy Advisory Board issued by the Galvin Commission, which stated:

> *Probably the most important reason behind the slow pace of assessment and clean-up [of DOE waste sites] is the low quality of science and technology that is being applied in the field . . . There is a lack of realization that many — and some experts believe most — existing remediation approaches are doomed to technical failure. Others would require unacceptable expenditures and much extended time to reach their stated objectives. There is a particular need for long-term, basic research in disciplines related to environmental clean-up. Adopting a science-based approach that includes supporting development of technologies and expertise could lead to both reduced clean-up costs and smaller environmental impacts at existing sites and to the development of a scientific foundation for advances in environmental technologies.*

2.3 Major Accomplishments

2.3.1 Management Success

Planning for the Program began in early 1995 in partnership with the Office of Science. Later that year it was initiated in response to a congressional mandate and recommendations from several external advisory groups, including the National Academy of Sciences (NAS) and the Secretary of Energy Advisory Board.

Several indicators point to early success of the Program:

- Receipt of the Vice President's Hammer Award – May 1998
- Establishment of a successful management partnership between EM and SC with a clear mission to ensure quality research is supported and focused on the DOE clean-up mission

- Establishment of effective consultation with environmental management problem holders to clearly understand problems and focus the solicitation and project selection process on the problems

- Initiation of partnerships with Focus Areas to integrate research into their technology development activities.

2.3.2 Solicitations and Awards

Four research solicitations have been completed to date. The first, issued in FY 1996, covered a broad range of "representative areas, including bioremediation, contaminant plumes, ecology, environmental restoration, health, mixed waste, radioactive waste tanks, spent fuel, and waste treatment, storage, and disposal." A total of 136 research projects was awarded in the first solicitation and are scheduled for initial project period completion in FY 1999.

The FY 1997 solicitation was more focused to address specific research needs received from DOE sites and "gaps" identified in the FY 1996 research portfolio. Specific technical challenges covered in the solicitation were high level radioactive waste tanks, spent nuclear fuel, fissile material, mixed and radioactive low level waste, waste disposal forms and risk, quantitative methodologies, human, and environmental health analyses. A total of 66 research projects are currently being funded for three years under the solicitation.

In FY 1998, two research solicitations targeting the critical areas of decontamination and decommissioning and high level waste were completed. A total of 33 research projects were awarded through the FY 1998 solicitations. In FY 1999, two more Request for Applications to solicit research proposals were issued by the EMSP concentrating on the low dose radiation research program and subsurface contamination/vadose zone issues.

2.3.3 Technology Integration and Transfer

The first National EMSP Workshop was held in July 1998 to communicate the progress and plans of all then-active projects. It served as an opportunity for scientists in different disciplines across the program to become acquainted with each other, and to discuss and coordinate research plans. Abstracts for those projects are available in CD-ROM and hardcopy formats and can also be accessed from the EMSP web site at *http://www.doe.gov/em52/*. The EMSP web site also provides up to date information about ongoing research projects, future events, updated technology needs, and links to other related environmental R&D programs.

The second National EMSP Workshop is scheduled for spring 2000 near the Savannah River site and will include a tour not only of this site, but also the Oak Ridge National Laboratory as well. In addition, this workshop will employ new ways of getting better end-user participation by using previously untried methods such as satellite broadcasts of the workshop to various DOE sites.

The EMSP will be featured in New Orleans during August 1999 at the American Chemical Society (ACS) national meeting in eight sessions on Early Results of the EMSP. Similar effective topical workshops have already been held at the Savannah River, Richland, and Idaho sites that have successfully linked researchers with EM problem holders by the following on the next page:

- identifying and refining EM's science needs
- providing forums to discuss areas where long-term scientific breakthroughs are needed
- directly involving site end-users in discussions with researchers regarding current research and site needs
- stimulating ideas for spin-off technologies and new approaches to solving current problems.

The EMSP is working in conjunction with the DOE Richland Operations Office (DOE-RL) to enhance the current EMSP portfolio in the area of vadose zone research. Currently, there is a call for proposals focused on vadose zone problems across the DOE Complex. The evaluation of the proposals is being integrated closely with the DOE-RL office and the Hanford Site Groundwater/Vadose Zone Integration Project.

3. VISION AND MISSION

3.1 EM, OST, and EMSP Missions

Environmental Management was founded with the mission of management of process waste from ongoing production activities, stewardship of waste currently in storage from past weapons complex operations, and the cleaning up of environmental contamination due to past and present practices. The Office of Science and Technology (OST) was founded to develop new technologies where existing ones were determined to be unsuitable, too costly, or involve high degrees of risk. The EMSP was established to provide the basis for those future technologies because a deeper understanding of underlying scientific principles is needed to advance many technical solutions. The mission of the EMSP is to identify and fund research that will result in transformational or breakthrough approaches for solving DOE's environmental problems considered intractable without new knowledge.

3.2 EMSP Vision

The EMSP will support research that seeks scientific understanding leading to reduced remediation costs, schedule, or risk and helping solve currently intractable problems. The sites will use the understanding gained through EMSP supported research to improve their clean-up efforts. Implementing these approaches will lead to significantly long-term reductions in clean-up costs as well as reductions in risks to workers and the public.

3.3 Integrating Missions

Integrating the EMSP mission with EM's technology development and end-user missions is accomplished in cooperation and partnership with the EM-OSRP (EM-52), DOE-SC, and DOE-ID. DOE-SC provides a strong link to the leaders of the national scientific community. This office participates in the development of program policies and solicitations of research projects, is responsible for ensuring proper review of the scientific merit of EMSP proposals, shares with EM the responsibility for selection of projects to be funded, and participates in scientific integration and communication activities associated with the EMSP. DOE-ID is the lead field office for program execution and assists EM-52 in identifying programmatic needs, involving stakeholders, managing financial aspects, and getting research results to the Focus Areas and other end-users. Focus Areas coordinate the overall science and technology investments within each of six problem areas. Moving research results to application by end-users involves:

- Working with DOE problem holders to identify needs and priorities
- Working with the OST Focus Areas to coordinate activities
- Communicating science results to Focus Area technology developers and EM problem holders.

Successful integration of the EMSP mission with the overall EM clean-up mission means developing the cadre of scientific talent needed to solve the Department's long-term technical problems. By attracting new ideas and technical innovation outside EM's traditional applied research programs, the EMSP will expand the technical assistance pool that EM can use or draw upon for future contributions and scientific breakthroughs. It is intended that this pool will also include the best new talent from universities and industry, in combination with DOE's national laboratories and other federal facilities.

To ensure that the research results and research in progress are anticipated and incorporated into technology development activities of the Focus Areas, Crosscutting Programs, and clean-up activities of site end-users, DOE is taking an active role in facilitating communication among these groups and EMSP

researchers. Research is integrated into the activities of the Focus Areas, Crosscutting programs, and site end-users through a variety of mechanisms and processes that allow for the communication of research results, both anticipated and unanticipated. Mechanisms for knowledge transfer include the National Workshop, annual research summaries of EMSP projects, and topical workshops.

4. GOALS AND STRATEGIES

The goals of the EMSP are to support basic science research that will:

- Lead to significantly lower clean-up costs and reduced risks to workers, the public, and the environment over the long term
- Bridge the gap between broad fundamental research that has wide-ranging applicability, such as that performed in DOE-SC, and program needs-driven applied technology development that is conducted in the DOE-OST (EM-50)
- Serve as a stimulus for focusing the nation's science infrastructure on critical national EM clean-up problems.
- Publish EMSP research results, such as any number of peer reviewed papers in scientific journals or presentations, in professional society sponsored conferences and symposiums.

4.1 Success Indicators for EMSP

The successful accomplishment of EMSP goals will be achieved by the following:

- Implementing a research agenda that is identified by gap analysis and interaction with and validated by the Focus Areas to focus on the most serious DOE-EM problems for which no adequate solution has been found
- Supporting the application of research results to DOE-EM problems, using a measure such as the number of projects whose results are successfully transferred to the FAs
- Expanding scientific resources focused on EM problem areas using a measure of long-term community commitment to EMSP, such as the number of projects that are renewed after an initial three years.
- Publishing EMSP research results in both scientific journals and the media such as in a number of peer reviewed papers or presentations
- Increasing the number of collaborations between EMSP and Focus Areas, industries, universities, and other government agencies through shared prioritization of needs
- Expanding the cadre of environmental research personnel through increasing the number of funded graduate students each year
- Publishing an Annual Report describing EMSP's progress during the year
- Transferring research project knowledge to FAs, other government agencies, industry, and universities for further development.

These success indicators and their relevant metrics will be discussed in detail in section 6.2.1.5, Metrics.

4.2 End-User Expectations

The end-user community has made their needs known to the EMSP through the *Paths to Closure* document and through workshops carried out by the EMSP, Site Technology Coordination Groups (STCGs), and Focus Areas. DOE sites are anticipating breakthroughs by EMSP researchers in order to remedy the intractable clean-up problems and complete their mission as defined in *Paths to Closure.*

Basic research can provide new knowledge that forms the basis for development of technologies allowing current clean-up to be completed safely and more effectively. Results from EMSP research will support end-users as a basis for decisions intended to ultimately impact current clean-up processes.

4.3 Near-Term and Long-Term Objectives and Results

As a near term goal, the EMSP envisions some of the research results moving directly to end-users for input in solving problems with existing clean-up methods and technologies. The majority of EMSP research projects will require further development. If further basic science is needed the researchers can competitively bid for further funding of the research. A long-term commitment to have competitive calls from various stakeholders (i.e., Focus Areas, universities, and other federal agencies) will be needed to complete the development of technologies based on the concepts defined and proven within the EMSP.

4.4 General Strategy

The EMSP will work within the structure defined in the Environmental Management Research and Development Program Plan. The EMSP will support the four major objectives identified in the plan to leverage science and technology investments to:

- Meet site high priority needs,
- Reduce the cost of clean-up,
- Reduce technology risk,
- Bridge the gap between development and use.

The EMSP will work closely with both site STCGs and Focus Areas to support the EM R&D Program plan objectives of reducing risk and cost through technology development and deployment. To support this, the EMSP will integrate roadmaps into the problem area, as identified in the Focus Areas' MYPPs, and work with them to support technology development and research integration. The EMSP will continue the policy of competitive research project selection using merit and relevancy reviews.

5. RELATIONSHIP TO OTHER PROGRAMS

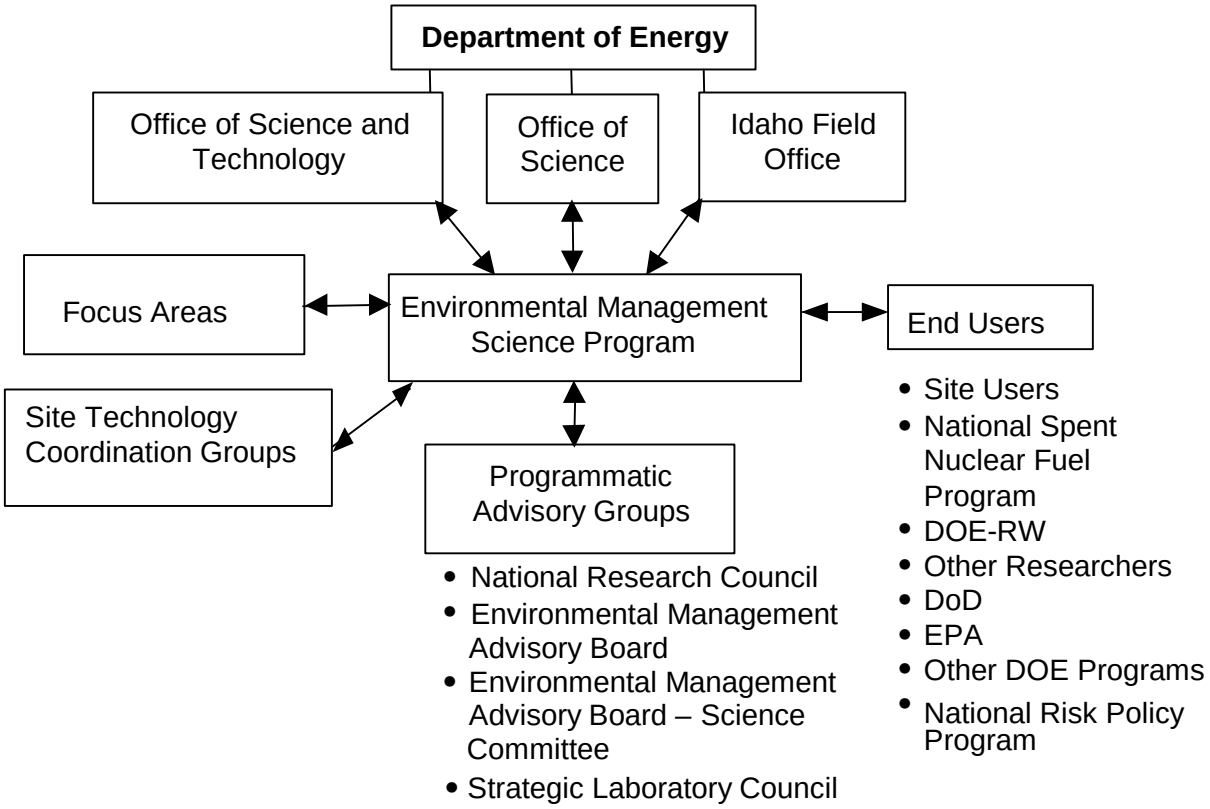

Figure 5.1. Relationship of the EMSP to Other Programs

A. The National Research Council is an invited advisor to the EMSP that looks at issues requested by the program such as the recent committee empanelled to assist the Office of Science and Risk Policy with developing a long range science plan for subsurface contamination research (Committee on Subsurface Contamination Research at DOE Complex Sites).

B. The Environmental Management Advisory Board reviews and advises on the overall EMSP program.

C. The Environmental Management Advisory Board – Science Committee looks at the quality of research and the processes used to select the research and provides recommendations.

D. The Strategic Laboratory Council evaluates the EMSP planning and execution in order to identify and communicate issues that requires resolution to assure program relevance and successful utilization of research results.

5.2 End-users

A. The EM/OST Focus Areas provide the linkage between the EMSP projects and the Department's ongoing waste management and clean-up programs within the Offices of Waste Management (EM-

30), Environmental Restoration (EM-40), and Nuclear Materials and Facility Stabilization (EM-60). Through regular communication and close cooperation between EM's site end-users, the Focus Areas identify opportunities to integrate the research results of EMSP projects to improve performance and reliability of their baseline clean-up technologies. The Focus Areas also evaluate EMSP projects and results to uncover opportunities to develop breakthrough technologies that will solve EM's long-term environmental problems and reduce risks. The five Focus Areas OST currently supports are:

- High Level Waste Tanks Remediation (HLW),
- Mixed Waste Focus Area (MWFA),
- Nuclear Materials/Plutonium Focus Area (PFA),
- Remedial Action/Subsurface Contaminants Focus Area (SCFA),
- Decontamination and Decommissioning (DDFA)

B. Spent Nuclear Fuel (SNF) integrates and coordinates the technology for management of DOE SNF waste from existing storage through disposal. The Office of Civilian Radioactive Waste Management (OCRWM) is the long term end-user of the SNF program and sets the waste acceptance criteria for SNF.

C. OCRWM is responsible for managing the safe storage and ultimate disposal of the nation's commercial spent nuclear fuel. The EMSP portfolio includes projects that offer enhancements and other scientific benefits to this program. EM-52 keeps OCRWM apprised of research activities and promising results through periodic publication of workshop results, annual reports, and direct interaction with OCRWM program managers.

D. Knowledge of other environmental research allows collaborative, non-duplicative research to be performed. Relevant research programs conducted by DOE and other agencies include:

- *Natural and Accelerated Bioremediation Research Program* (NABIR) sponsored by DOE-SC to increase understanding and utilization of contaminant bioremediation processes
- *Nuclear Energy Research Initiative* (NERI), sponsored by DOE's Office of Nuclear Energy to help overcome technical and scientific obstacles to future nuclear energy use
- *SBIR topics*, including those outside EM, managed by DOE-SC to increase private sector commercialization of federally-funded technologies
- The *Strategic Environmental Research and Development Program* (SERDP) is the Department of Defense's (DOD) corporate environmental R&D program. SERDP is planned and executed in full partnership with DOE and the Environmental Protection Agency with participation by numerous other federal and non-federal organizations.

E. The Health/Ecology/Risk problem area is addressed primarily through EM's National Risk Policy Program, managed by EM-52, in partnership with the Center for Risk Excellence at the DOE Chicago Operations Office. The Program identifies areas of scientific research that will help EM reduce risks to workers, the public, and the environment during EM clean-up activities and over the long-term.

5.3 Technical Advisory Groups

A. EMSP gathers technology and specific needs information from the STCGs and uses them to validate the science needs

B. The EM Integration Program team identifies ways to improve efficiencies and cost savings across EM projects and advises the EMSP program managers on science priorities associated with critical waste streams. The EMSP takes that information and matches promising researchers to the critical waste streams to find solutions

C. The EMSP is integrated with the full range of Focus Area activities. The Focus Areas provide technical support in the definition of the program's direction in terms of research needs from across the EM complex, and are users of the results coming out of the research.

5.4 Program Direction

A. The EMSP takes the mission and program strategy from the Office of Science and Technology policy and reports results to EM-1 through that office.

B. The EMSP identifies the science needs that help drive the strategic R&D plan for Science and Technology.

C. The Office of Science manages the solicitation of research applications, oversees the scientific review, manages the technical aspects of the research program, and ensures that EMSP-funded research does not duplicate other research.

D. The DOE Idaho Operations Office (DOE-ID) works as the lead field office in partnership with the Office of Science and Technology's (EM-50) Office of Science and Risk Policy (OSRP EM-52).

The EMSP portfolio is organized according to seven problem areas—the five Focus Areas, Spent Nuclear Fuels, and the Health/Ecology/Risk at the Center for Risk Policy program at ANL. Figure 5.2 shows the distribution of research funding by each of the seven problem areas.

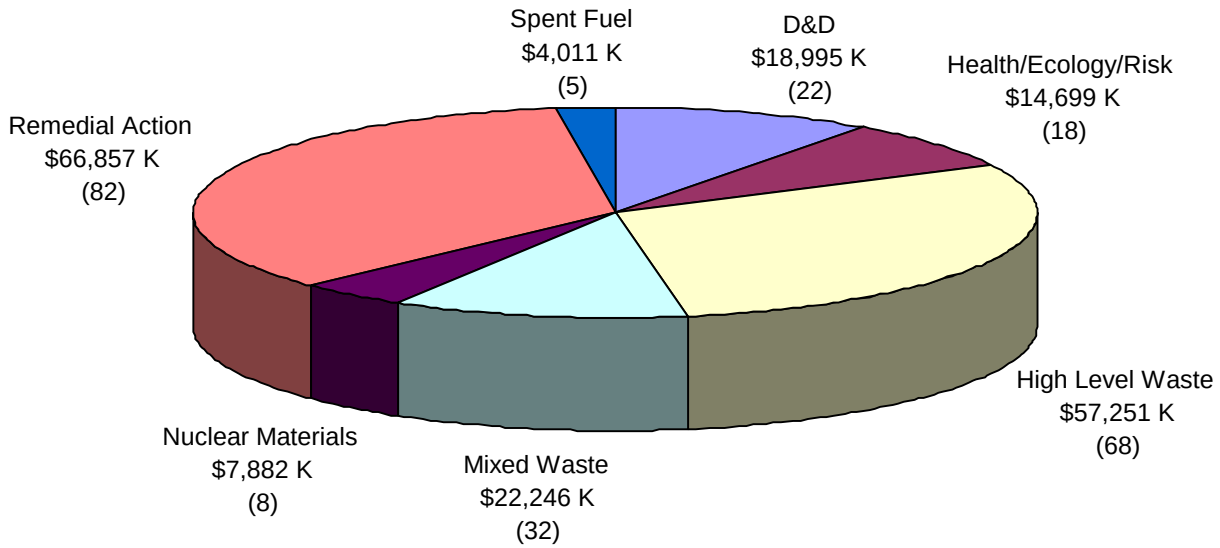

Figure 5.2. EMSP Funding by Problem Area.

6. TECHNICAL PROGRAM

The EMSP is a collaborative partnership between the DOE Office of Environmental Management (DOE-EM) and the DOE Office of Science (DOE-SC) to sponsor targeted research that will lead to reduction of the costs and risks associated with cleaning up the nation's nuclear complex. The Idaho Operations Office was selected to work in partnership with EM-52 to support the EMSP. Researchers from DOE laboratories, governmental and private laboratories, universities, research institutions, and industries from around the world carry out the targeted research.

The EMSP consists of six Work Breakdown Structure (WBS) functional elements: Project Management, Research Needs and Opportunities, Research Solicitation, Portfolio Management and Analysis, Research Integration, and Communications. Briefly, the major WBS elements are:

- *Project Management* – supports the development of strategic policy for EMSP and plans and administers the key EMSP processes in a way that provides a defensible basis for program activities.

- *Research Needs and Opportunities* – identifies and prioritizes research needs and opportunities of DOE sites, EM Focus Areas and Crosscutting Programs, and other existing sources of information for input to EMSP solicitations, research integration, and other processes.

- *Research Solicitation* – ensures that procedures are followed for contracting and distributing of award funds, supports the development of policy for EMSP project continuation, and performs procurement services for EMSP projects.

- *Portfolio Management and Analysis* – collects and maintains information on the EMSP portfolio of research projects in order to provide pertinent information to other organizations and to perform analysis as needed to meet program requirements.

- *Research Integration* – ensures the results of EMSP research will be communicated and incorporated into the ongoing technology development programs of the Focus Areas, Spent Nuclear Fuel Program, Crosscutting Programs, and clean-up activities of the DOE sites.

- *Communications* - ensures research results and information about the program is communicated to the appropriate party such as FA, potential end-users, and stakeholders. This will be accomplished by attendance at relevant conferences such as Waste Management and Spectrum, and through news media, the Internet, and in-house publications.

6.1 Technical Program Summary

The key EMSP processes include identifying and prioritizing research needs, developing solicitations, selecting research projects, managing the EMSP research portfolio, conducting the research, and integrating that research. Figure 6.1 depicts the EMSP in relation to the Focus Areas and other stakeholders including STCGs. The overall process is described in greater detail below.

Several EMSP processes make use of Focus Area, Crosscutting Program, EMI, and STCG input in decision making.

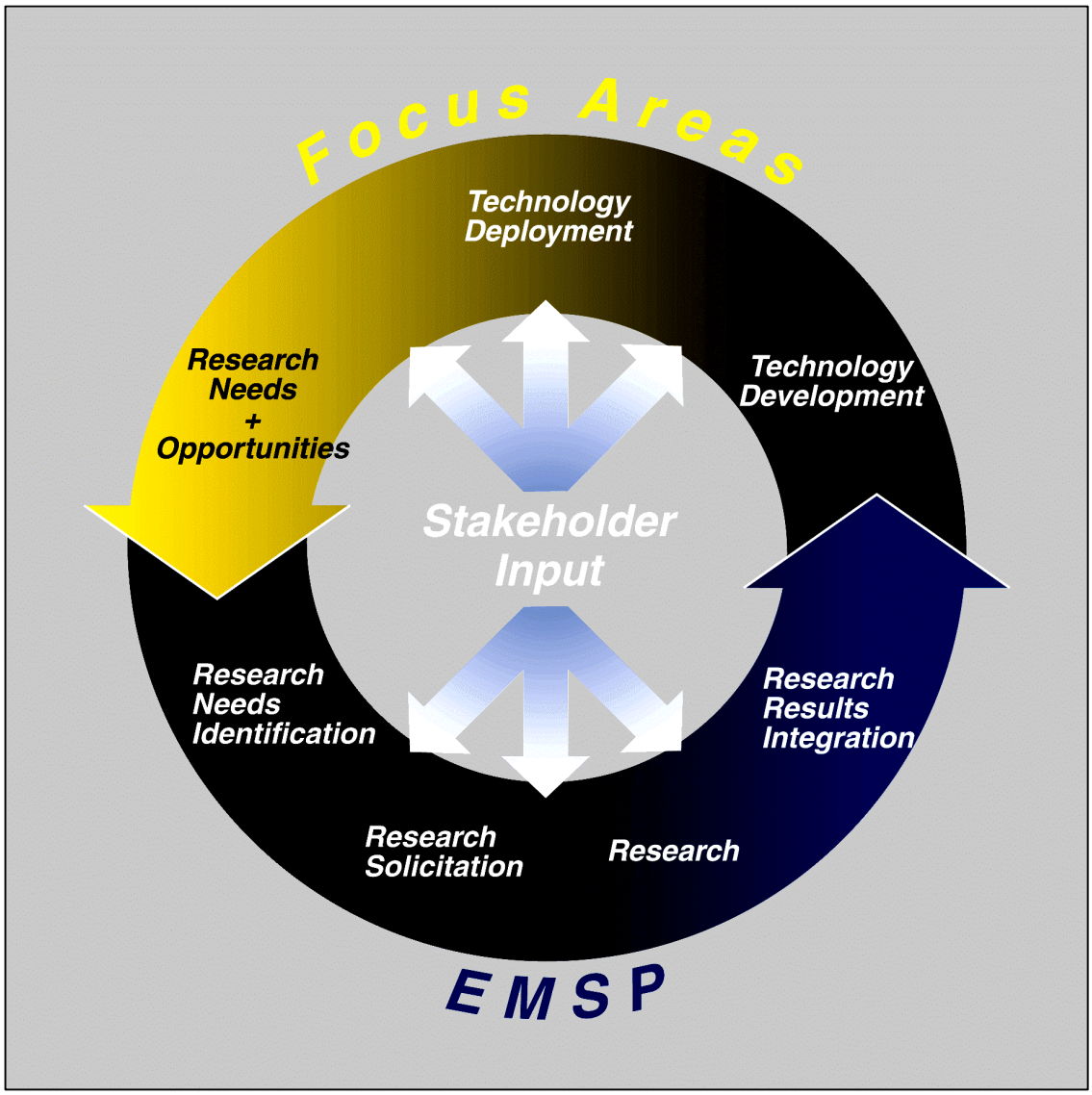

Figure 6.1. The EMSP Process Relative to the Focus Areas

6.2 Level 2 Elements (Work Packages)

Level 2 elements of the WBS (See Appendix B) are the closest analogy to Work Packages. The level of detail will be consistent with work package level of detail. These elements, which are described in detail below, support the overall EMSP key processes but do not directly correlate with them.

6.2.1 EMSP Program Management

6.2.1.1 Strategic Planning. The EMSP strategic guidance comes from the Office of Science and Technologies Strategic Plan and R&D Program Plan. Plans will be developed that direct the EMSP's overall course and direction at a long term, strategic level (1-5 years), and guidance at a shorter term level(less than 1 year). This includes developing policy statements and the infrastructure needed to conduct operations, as well as assigning responsibility for carrying out those operations.

6.2.1.2 Program Oversight. Program review functions are performed to ensure EMSP activities are conducted properly, within their defined scope, and within their assigned budget. Oversight also ensures EMSP activities are coordinated with other OST activities, such as the EMSP annual review, Internal Review Budgets, Focus Area research integration, EM-50 communication activities, and other OST activities as identified.

This function also provides the EMSP interface with external oversight groups, such as Congress, the National Academy of Sciences, the Environmental Management Advisory Board, and other advisory reviews commissioned by EM or Congress.

6.2.1.3 Program Support. Program Support activities include three main activities: 1) planning and budgeting for the EMSP, 2) developing and maintaining the EMSP master schedule, and 3) providing administrative support for EMSP activities. This activity also develops the plan and interfaces necessary for the efficient and effective operation of the EMSP.

6.2.1.4 Systems Integration Support. Integration support will involve developing and maintaining a configuration management and document control system consistent with the applicable DOE orders to ensure traceability and defensibility of our databases. Other functions include updating the program requirements database, as well as developing other management tools and databases as needed (such as the Workshop Lessons Learned database, researcher tracking database, the disposition database, and the action item tracking database)

Additional support will be given to enhance our capability of communication both internally and externally with the EMSP by better understanding 1) what our stakeholders need in the way of information to stay current, and 2) the information needed to transfer EMSP research knowledge to the next step in the gate model.

6.2.1.5 Metrics Development. Based upon the success indicators, metrics will be developed and tracked for both the program and the individual research over the next year. Program metrics are needed that are quantitative and consistent with the Focus Areas. Both the National Research Council and Congress have asked for the use of metrics for this program. The program metrics will be developed using a systems approach. Three years worth of information and trending already collected, making the metrics much easier to develop and track. Based upon the success of that effort a second phase will be undertaken to develop research project metrics to help predict the probability of selecting successful research projects.

6.2.2 Research Needs and Opportunities Assessment Process

The research needs and opportunity identification and assessment process follows the five-step approach described below. Needs are defined as research needs necessary to support development of a technology not currently available, whereas an opportunity is an area where new research may positively impact a current process. The objective of the research needs and opportunities process is to provide a consistent, defensible way of collecting and prioritizing the science needs necessary for clean-up of EM waste and to identify potential gaps for future solicitations.

6.2.2.1 Comprehensive Needs Collection. After the needs are collected from all identifiable sources, research needs are organized into six EM programmatic categories or problems areas: high level waste, subsurface contaminants, mixed waste, decontamination and decommissioning, nuclear materials, and spent nuclear fuel. Research needs associated with health, ecology, or risk form a problem area that is generally crosscutting to other Focus Areas. The next step is to prioritize needs.

6.2.2.2 Research Needs Screening, Selection, and Prioritization. Needs are prioritized working closely with Focus Areas and STCGs. First, criteria are identified based upon input from the EMSP, Focus Areas, and STCGs. These criteria fall into two general categories, technology maturity and program impact. Next, a team of experts weighs the criteria. Then, each need is rated against the criteria, and the need that has the highest weight times rating is ranked the highest, the second, the next highest, and so forth.

6.2.2.3 EMSP Linkage Development. Prioritized needs are linked to the existing portfolio of research projects to identify potential gaps between needs and research funded. Research projects are linked to the high impact clean-up projects and to the waste streams identified in *Paths to Closure*. Needs are also linked through the EM-50 Needs Management System (NMS) by STCG number. In this way, needs can be traced to specific STCG needs and eventually to PBS(s). The EMSP is currently working with EM-50 to enhance integration with the NMS. Research needs are also linked to the EM-50 Analysis and Visualization System (AVS) through STCG number. Needs can be traced to specific waste stream disposition maps for EM.

6.2.2.4 Research Needs Analysis. The list of potential gaps is then sent to the STCGs and the Focus Areas. This information is used for formulation of future solicitations.

6.2.2.5 EMSP Needs Database Management. A key aspect of the needs assessment process is an Internet accessible database of EMSP needs. The database is valuable due to easy accessibility, and users may search for research needs by Focus Area, Crosscut, or Science Category.

6.2.3 Research Solicitation

6.2.3.1 Solicitation Development. Development of the solicitation(s) is conducted in partnership with the Office of Science (DOE-SC), and is based on information gathered through the research needs identification process. Solicitations are published in the Federal Register in accordance with 10 CFR 600 and 605.

6.2.3.2 Solicitation Support. Activities to support the distribution of the Request for Applications, pre-application and formal application relevance review processes are conducted jointly by OSRP and DOE-ID.

6.2.3.2.1 Prospective Researcher Database—As part of the mission of focusing research on critical EM problems, EMSP identifies prospective researchers in various fields of scientific research from universities, the private sector, DOE laboratories, and governmental and private laboratories. EMSP maintains a database of these prospective researchers and utilizes this to notify researchers of future calls for proposals such as the 1998 solicitations and research integration information.

6.2.3.2.2 ID Support—DOE-ID assists in the distribution of the RFA(s) to perspective researchers using the researcher database. They prepare materials to support the pre-application and formal application screening during the relevance review process. These materials include research needs documents and Project Summary Documentation of existing research projects.

6.2.3.2.3 Reviewers—EMSP identifies federal reviewers for the pre-application review screen and includes Focus Area and other appropriate end-user representatives in the relevance review. EMSP has established and currently maintains a database of reviewers in order to rapidly respond to additional solicitations.

6.2.3.3 Research Project Selection. The research project selection is a systematic process used to evaluate pre-applications and formal applications for scientific merit and relevance to the DOE environmental clean-up mission.

6.2.3.3.1 Pre-application Review—A review of all pre-applications is performed by DOE-SC to ensure the research will focus on basic science and by DOE-EM to ensure research needs will be addressed. Letters encouraging or discouraging submittal of formal applications, based on the results of the pre-application review, are sent to the researchers.

6.2.3.3.2 Merit Review - Formal Applications—The first part of the two-stage formal application review process is performed by DOE-SC. A panel of external peer review experts evaluate all formal applications to determine scientific merit. Formal applications with scientific merit are forwarded to the relevance review.

6.2.3.3.3 Relevance Review - Formal Applications—The second part of the two-stage formal application review process is performed by DOE-EM. A panel of federal scientists and engineers evaluate formal applications with scientific merit for relevance to DOE-EM's clean-up problems.

6.2.3.3.4 Review Feedback—Reviewer comments are provided to successful and unsuccessful candidates in order to increase the transparency and technical credibility of the formal application review process.

6.2.3.4 Research Funding. EMSP works with DOE-SC to determine the final award amounts for the successful applications and assists in assembling the award packages for grant and laboratory awards.

6.2.4 Portfolio Management and Analysis

6.2.4.1 Research Project Funding. Funding activities include identifying funds available for research projects selected as part of the current year's portfolio selection process, analyzing total available funding, identifying funding options for calculating funding distribution over the life of the research projects, and distributing funding between research partners.

In order to accomplish these objectives and to track progress EMSP must:

- develop Program Execution Guidance (PEG) and Technical Task Plan (TTP) for new and previous awards
- prepare Task Change Requests for funding changes
- identify program management funding options
- collect information from the Progress Tracking System (PTS) on project performance.

6.2.4.2 Grant Administration. In order to administer the grants under EMSP the following data elements must be corrected:

- award data from the EM Relevance Review process
- final award amounts and awardees.

DOE–SC engages the researchers in discussions to develop final award amounts and ensures that any anomalies in the proposals are resolved. In order to establish the grant, EMSP works with DOE-ID Procurement to issue the research award funding. If it is necessary to modify existing awards, the EMSP

works with SC and EM-52. Files with this basic data are created and managed for new and existing research awards in order to facilitate tracking and changes.

6.2.4.3 Project Disposition. In order to allow the transferring of research projects as they come to completion, EMSP maintains a list of projects approaching the end of their award period. To assist decision-makers in determining whether or not a project merits continuation, specific reporting requirements have been established and reports are made available to potential users. The close out of the projects include the distribution of a final disposition letter, a file disposition, a research results report analysis, and a resolution of database issues.

Presently EMSP is developing memorandums of agreement with the Focus Areas for commitments to incorporate research as part of our research integration efforts (see section 6.2.5).

6.2.4.4 EMSP Data Management. EMSP collects information on the research projects, such as abstracts, funding levels, researcher' statistical information, DOE points of contact, and institution information for ready retrieval by DOE, researchers, and the public. As part of this function EMSP interfaces with researchers and DOE Operations Offices to communicate, explain, and facilitate compliance with EM-52 program expectations and requirements.

6.2.4.5 Data Analysis. Analysis of the EMSP portfolio is required for information used in presentations and to inform decision-making by DOE-HQ, stakeholders, and other interested parties. Typical analyses include funding profiles (i.e., EM/SC category, by state, universities/national labs, etc.) and statistical profiles (i.e., numbers of projects by state, institution, etc.).

6.2.4.6 Research Project Reviews. In addition to annual reporting requirements for researchers, EMSP conducts workshops where researchers are invited to report on the status of their research, and demonstrate the progress and relevance of their research project.

6.2.5 Research Integration

6.2.5.1 National EMSP Workshop. The objectives of the workshop are: (1) transfer knowledge from the researcher to the end-user, (2) give the researchers better understanding of the clean-up problems, (3) promote informational interchange among the researchers, and (4) increase public awareness of the EMSP. The product of this workshop will result in a 3-volume CD set containing annual reports, presentations, and each exhibitor's poster.

This is accomplished by facilitating and promoting the exchange of information among EMSP researchers, site problem holders, Focus Area/cross-cut representatives, and other interested end-users. This national event includes participation by the EMSP researchers as well as numerous stakeholders from across the EM program. The workshop provides opportunities for all interested parties to participate in informational exchange and helps ensure the EMSP stays focused on EM program needs.

The second National Workshop is scheduled for spring 2000 near the Savannah River site and will include tours not only of this site, but also of the Oak Ridge National Laboratory as well. In addition, this workshop will employ new ways of getting better end-user-participation by using previously untried methods such as satellite broadcasts of the proceedings to various DOE sites.

6.2.5.2 Topical Workshops. The objective of the topical workshops is to establish and maintain lines of communication between EMSP researchers and potential end-users at a detailed level that enhances the quality of the research towards cleaning up legacy waste and promotes the research to the end-user. The workshops will be conducted in two ways; as virtual workshops using the Internet, and at

DOE sites. This will maximize the amount of workshops that can meet the objective while staying within budgetary desires to minimize overhead and maximize research funded. The topical workshops will fall into four categories:

- Focus Area or cross-cutting specific workshops
- Site-specific workshops focused on issues relating to individual DOE sites, such as the one conducted in July 1998 at the Savannah River Site
- Workshops intended to address issues either science or problem area specific, and
- Leverage existing national professional meetings by funding and chairing sessions of interest to the EMSP.

Workshop proceedings will document recommendations, provide a contact list, and incorporate copies of presentations where available. The proposed 1999 workshops complement the subject areas covered by the 1998 workshops and are tentatively identified below.

- Characterization Monitoring and Sensor Technology (CMST) – March 9-11, 1999

- Actinide chemistry and Non-Thermal Processing of Waste, Los Alamos, late June - early July

- Health Ecology and Risk and Non-Ionizing Radiation, Chicago, ANL-E, October

- Western Vadose Zone - Salt Lake City, December 1999

- Oak Ridge National Laboratory – Oak Ridge TN. Numerous EMSP projects are located at Oak Ridge National Laboratory (ORNL). The EMSP, in partnership with the Savannah River Site (SRS) is planning to conduct a workshop. SRS and EMSP staff are currently planning for this workshop and the exact format is still being developed.

6.2.5.2.1 Focus Area Reviews—The objective of tying an EMSP workshop to a Focus Area review is to better define end-user needs so researchers fully understand the site problem for which their research is targeted. Dialogue between the end-users and the researchers as to how the research results can be applied enables customers sufficient understanding of the EMSP projects to "pull" technology down the chain from research to deployment. Focus Areas should indicate and facilitate interaction where there is a potential application and provide recommendations for tailoring planned research activities towards Focus Area needs.

6.2.5.2.2 Professional Society Meetings—To reduce costs, promote information exchange, and access a greater diversity of scientific talent and end-users, EMSP will sponsor symposia at appropriate established professional meetings. These symposia will focus on integration and communication among scientists contributing to common R&D Focus Areas. EMSP will reach a broader audience of diverse scientific talent by collaborating with scientific professional organizations offering greater diversity in information and interactions. Symposia topics will be focused on EMSP R&D and provide the opportunity for real-time knowledge exchange. Topics for the individual symposium will be proposed by EMSP to the appropriate professional organization(s) for inclusion on the annual meeting program. As a symposia sponsor, EMSP will introduce the symposium theme/topic and develop or assist in development of the symposium speaker agenda. This would include EMSP introducing the symposia theme relative to EM program needs, funding opportunities, desired symposium outcomes, and products and/or solutions. Sponsoring professional meeting symposia will generally include costs of invited speakers and symposia publications. Facilities and other logistical arrangements will be set up for by the

sponsoring professional organization, thus reducing time/costs to EMSP. The American Nuclear Society and the American Chemical Society are two professional organizations which may solicit funding from EMSP as a meeting sponsor. The product from each of these professional society meetings will be a report detailing the workshop, its findings, and action plans.

6.2.5.3 Exhibits. Attendance at exhibitions allows the EMSP to promote its funded research at selected science national meetings. This will allow a wide and most promising audience of interested researchers or end-users to stimulate interest in the EMSP. For example, these include the American Chemical Society symposia, Waste Management '99, American Nuclear Society related meetings, etc. The planned exhibitions are as follows:

- WM '99 - Phoenix, Arizona – Feb. 28 – Mar. 4, 1999
- ACS - Anaheim, California – Mar. 21 – 25
- Globe '99 – Jackson Hole, Wyoming – Aug. 1999
- American Chemical Society - New Orleans, Louisiana, Aug. 22-26
- TIE - Eleventh National TIE Workshop, Nevada Operations Office - Oct. 26-28
- ANS Winter Meeting - Long Beach, CA, Nov. 14-18
- SERDP - TBD, Dec. 1999
- TechnoVentions '99 – Walt Disney World, Fla., Dec. 1999

6.2.5.4 Research Transfer. The objective of Research Integration is to facilitate the transfer of research results generated by EMSP-funded research so that promising ideas are transferred to the next technology development gate in an effort to close the so-called "Valley of Death" between applied research and technology development. Research knowledge integration or transfer is analogous to Technology Transfer, which historically has shown that pushing technology downstream does not work. For technology transfer to work it must be embraced and pulled by the next developer in the chain. Areas being developed to facilitate this include:

a) Designating a "Research Broker" to help select mature technical research and promote it to other EM programs (Focus Areas, Crosscutting Areas, Industry and University Programs, etc.) or other sources of funding (Small Business Innovative Research, Science, DOD Programs, etc.)

b) Facilitating knowledge transfer to communicate research results to other EM Programs and other potential funding sources for follow-on funding of promising ideas generated by EMSP-funded research. (Note: ties to Communication efforts)

c) Developing/Encouraging Champions/Advocates/Sponsors to help researchers get the information they require about EM problems and promote the results generated by the research to potential funding sources.

d) Providing incentives for the problem holder to use their sites for demonstration of the technology.

An essential part of the Research Integration is the researchers final report (submitted within 90 days of the end of the research) which will be available on the Internet. Other products that might be developed here will depend on the metrics developed to indicate success.

The product of technology transfer activities will be an annual report published 1st Quarter FY-2000 documenting the year's activities. Research Integration activities encompassing what was accomplished, the identification of contacts, and the description of the following year's plans, including collaborations with FAs and other end-users, will all be important parts of this report. Its objective will be to provide a single source where an end-user can locate the description, maturity of research, points of contact, and other information necessary to maximize the transfer of research knowledge.

6.2.6 Communications

Communication is the glue that will allow the successful transfer of knowledge from research to end-user. Communication is the umbrella that will be considered in every aspect in the operation and management of this program. The communications plan is the guidance document that guides all communication with any of the stakeholder groups identified in Figure 5.1.

The following elements are addressed in the attached Communications Plan (see Appendix A). A high level summary of those tasks are:

1. Web Page Design and Development – An integration of existing web pages and their redesign as necessary to include new elements and ideas

2. Web Page Maintenance – Provision of updates as necessary to web page content

3. Focus Area Liaison Support – Federal employee-led function to promote good will and research cooperation between Focus Areas and EMSP

4. Congressional Liaison - Federal (HQ) employee-led function to promote communication between EMSP and Congress

5. Publications/Press releases scrapbook – A repository of all work presented or published by the media of EMSP research, such as the development of a metric system, through deployment

6. Popular Science Articles Development – Prepare press releases to promote promising research results written for the average person

7. Contributions/Inserts to *Initiatives* – Prepare articles and/or inserts for publication in *Initiatives* and subsequent distribution via existing channels to OST audiences

8. EMSP Annual Report – Prepare an annual status report, similar to the Focus Areas Annual Reports, but aimed more at reporting on progress made and planned activities for the next year

9. EMSP Calendar – Maintain a calendar of dates important to EMSP, including EMSP solicitation dates, workshops, Focus Area meetings, and other EM-related events

10. EMSP Exhibitions – Prepare and staff exhibits for selected meetings and conferences to promote EMSP to other EM Programs and the greater scientific community.

APPENDIX A: EM Science Program Communication Plan

CONTENTS

1. INTRODUCTION

1.1 Background

Effective communication is a key element in implementing the mission of the Environmental Management Science Program, as summarized in the sidebar. Program objectives are three-fold: 1) to attract top scientific ideas and talent in order to conduct targeted environmental remediation research, 2) to facilitate program and project execution, and 3) to integrate research results with ongoing EM technology development and clean-up activities.

As the EMSP enters its fourth year in FY1999, a sound communication strategy and plan is critical to disseminating and utilizing the outstanding results of the initial 136 research projects. These results not only support long-term solutions to EM's most difficult problems, but they also offer enhancements to current technologies in development or already deployed within the EM Program. This communication plan is designed to realize the full benefit of this initial research, which includes increasing the success rate of ongoing projects and improving the quality and creativity of new research proposals to the program.

Environmental Management Science Program Mission

The EMSP was established in 1996 to carry out a long term research agenda focusing on the fundamental science needed to develop less costly, innovative methods and reduce the risk to workers and communities near weapons clean-up operations, make meaningful contributions to a more rational and defensible DOE Environmental Management Program and result in enhanced technologies that can be used outside the DOE.

1.2 Purpose

The purpose of the Communication Plan is to inform EMSP participants and interested parties about the tools, requirements, and responsibilities associated with current and planned communication activities of the EMSP. Proper implementation of the Plan will enhance the value of research results and foster teamwork among researchers, technology users, and EMSP management organizations. This plan does not encompass the communications objectives of the Risk Program, which is a part of the EM Science Program. The communication products from other organizations, which must be received by EMSP in order to complete, the EMSP's communication goals are not included in this plan, because these products should be part of the communications planning of other organizations.

1.3 Objectives

The objectives of the EMSP Communication Plan are to define the communication pathways, audiences, processes, and roles and responsibilities which will allow EMSP to meet its programmatic goals through:

- Communicating the managerial and fiscal fitness of the program to stakeholders
- Involving existing and potential researchers in the process
- Disseminating the results from ongoing and completed research activities to the public, potential developers, and other end-users
- Increasing synergy with internal and external science/R&D programs

The EMSP should be considered an adjunct to the EM-50 Communication plan and the Communications Handbook, which can be found on the EM web site at http://ost.em.doe.gov/ifd/ost/pubs/guide.htm. These documents provide standardized formats and guidance for many of the communications products that are produced by EMSP. For specific guidance as to form, required content, and the approval process these documents should be consulted.

2. AUDIENCE AND NEEDS INFORMATION

The audience for EMSP communications consists of five primary groups. The communication needs for each group, while not unrelated to the needs of the other groups, may have specific aspects that make them distinct from the others. Figure 2, on page A-6, shows the anticipated needs for each audience and the considerable overlap in the needs of the various audiences.

2.1 Sponsors

This group is made up primarily of EM-52 personnel, EMSP program management, EM management, DOE Office of Science (SC), DOE Office of Management and Budget, Congress, and the general public. To a lesser extent this group includes internal DOE entities which are not necessarily called out above or included as a site user or Focus Area. This would include Headquarters EM personnel and management as well as individuals outside of EM. In general the sponsors interest is in budget, program justification, policy, and results; not intermediate day-to-day operations. Examples of the types of needs are as follows:

- Description of EMSP operations and background
- Request for Applications process
- Regulatory impact
- Project needs/location/results and impact
- Program planning and budget documents
- Program goals
- Metrics
- Progress reports.

2.2 End-users

This group is perhaps the most diverse group with which EMSP must communicate. It includes EM-30, 40, 60, 70, STCGs, industry entities, and stakeholders such as state and tribal leaders, concerned citizens, and regulators. End-users are primarily interested in assuring that the program meets their needs and in the results of the research efforts. Their interests would include:

- Integration information
- Project maturity
- Project descriptions and results
- Linkages to site needs
- How to link to EMSP personnel and researches
- To be made aware of potential scientific breakthroughs impacting their needs
- Types and location of projects
- Progress/results/successes.

2.3 Researchers

This group includes the current EMSP researchers and the prospective researchers. Researchers drawn from the national laboratories, universities, and private industry carry out EMSP projects. Because of the diversity of this group, communications must be presented in multi-levels, in order to address individuals with varying degrees of prior knowledge about the program. Their primary needs are:

- Request for Applications/Call for Proposals process
- Identification of program goals
- How to get involved with the program
- Guidance on how the program operates
- Enumeration of the EM science needs
- Realistic assessment of programmatic objectives and EM objectives.

2.4 Developers

This group includes those that must take the basic scientific principals developed and demonstrated in the EMSP portfolio to operational scale demonstrations in the field. This group could include the initial researchers, the Focus Areas/crosscut within EM-50, development agencies within other governmental agencies, such as EPA, DoD, NASA, DOI or state and local agencies, or industrial/private sector firms. Many of the needs of the technology developers parallel those of the end-users. In order for the technology developer to be able to fit the EMSP results into their long range planning for technologies they need to know:

- EMSP operations and background
- Information on workshops
- Integration information
- Project maturity
- Project descriptions and results
- Linkages to site needs
- How to link to EMSP personnel and researches
- Current status of potential scientific breakthroughs impacting their needs
- Types and location of projects
- Progress/results/successes
- Intellectual property issues.

2.5 External Advisory/Oversight

The activities of the EMSP are monitored on a periodic basis by oversight groups to determine whether the program is meeting the needs of EM, the processes being used are appropriate, and the overall effectiveness of the program is being accurately assessed. These groups include the National Academy of Sciences, the EM Advisory Board, and the Strategic Laboratory Council, whose collective mission is to assess the management, fiscal, and technical aspects of the program. Their needs include:

- Policy documentation
- Guidance documentation
- Budget information
- Process information
- Technical program status
- Linkage to site needs
- Indications of success and metrics.

	Sponsors							External Advisory/Oversight			End-users		Researchers		Developers	
	Congress	OMB	SCO	EM Management	EM-52	Internal DOE	Public	EMAB	Strategic Lab Council	NAS/NRC	Site Users/STCGs	Other Agencies	Current Researchers	Prospective Researchers	Industry/Private Sector	Focus Areas/ Crosscuts
EMSP Operations and Background	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
EM Science Needs	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Proposal Guidance													X	X		
Request for Applications Process	X		X	X	X		X				X		X	X	X	X
Workshop Information			X	X	X	X					X		X	X	X	X
Operating Guidance				X	X	X										X
Integration Information	X	X	X	X	X	X	X				X	X	X		X	X
Regulatory Impact	X	X		X	X	X	X				X	X	X		X	X
Points of Contact	X	X	X	X	X	X	X				X	X	X	X	X	X
Project Description/Results	X			X	X	X	X				X	X	X		X	X
Industry Participation	X			X	X			X	X	X	X	X	X		X	X
Intellectual Property Issues													X	X	X	X
How to Link with Researchers					X						X	X	X	X	X	X
Linkages to Site Needs	X		X	X	X		X	X	X	X	X		X	X		X
Information on Science Impacting Needs	X	X		X	X		X				X	X			X	X
Program Planning/Budget Documents	X	X		X	X	X										
Project Location	X				X						X	X			X	X
Successes	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
Number and Types of Projects	X	X		X	X	X	X				X	X	X		X	X
Performance Metrics	X	X	X	X	X	X	X	X	X	X	X		X			X
Results and Impact	X	X		X	X	X	X	X	X	X	X	X	X		X	X
Master Schedule				X	X	X										
Request for Applications Review Results			X		X									X		
Document Distribution	X	X		X	X	X	X				X	X	X	X	X	X
Work Assignments				X	X	X							X	X		
Progress Reports	X	X	X	X	X	X	X				X	X	X	X	X	X
Workshop Evaluation/Reports			X		X	X					X	X	X		X	X

Figure 2. Audience Needs

3. COMMUNICATIONS MEDIA

The Office of Science and Risk Policy uses a variety of communication media and methods to attract participants, disseminate research results, and enhance collaboration. These tools fall into three primary categories: electronic media, hardcopy publications, and direct interaction among participants.

In the development of any communication product, it is important to define three parameters at the beginning of the process: 1) the audience must be determined, 2) the objective of the communication effort must be determined, and 3) the specific medium best suited to reach the desired audience must be selected. The following discussion of communication media should be considered in the selection process.

3.1 Electronic Media

3.1.1 Web Pages

The Office of Science and Risk Policy Web Page can be reached at http://www.em.doe.gov/science/ or through links from the Office of Science and Technology Homepage and other DOE-related sites. Headquarters-based web pages allow users to select specific and current information, including descriptions of programs, Request for Applications announcements, personnel listings, electronic versions of various publications, and links to the EM Science Program Research Projects Portfolio and the Center for Risk Excellence Homepage. The DOE Office of Scientific and Technology Information (OSTI) maintains the EMSP web page.

3.1.2 CD ROMs

CD ROM technology can be an effective means of conveying information about Science and Risk activities to specific groups. These types of vehicles are quite small yet capable of handling very large amounts of information at a low cost. For example, the entire 400-page proceedings document for the 1998 EMSP Annual Meeting is available on a single CD-ROM.

3.1.3 Electronic Mail

These media address the need to rapidly transmit written material or data over wide areas and to multiple recipients. A principal advantage of electronic mail is that it is far less expensive than overnight services and in almost all cases more rapid.

3.1.4 Informational Videos

Videos allow the demonstration of the accomplishments of the program to a wide audience. The information presented in videos is generally of a less technical nature than presented in scientific reports and briefings, and therefore more easily understood by a broader audience. If properly designed and executed, video presentations can attract the interest and support from the general public, sponsors, and other researchers. Videos are particularly useful in display booths at technical and trade conferences where the objective is to reach a diverse audience in a brief time frame.

3.1.5 Teleconferences

In order to maintain open lines of communication between the three principal parties to the EMSP, conference calls are conducted on a weekly basis. These calls provide an opportunity to share concerns,

provide direction, and resolve issues. Conference calls also provide opportunities for interactions in lieu of direct meetings. These interactions include application/pre-application reviews, interactions with the researchers, and interactions with interested parties outside the EMSP, such as the Focus Areas and STCGs.

3.2 Hardcopy Publications

3.2.1 Letters and Memoranda

Letters and memoranda are one of the most commonly used forms of hardcopy communication. In general, letters and memoranda are used when a formal, yet personal, response is needed. Unlike oral communications, these written media allow careful consideration of content so that there can be little question about the message. They also allow tracking of the receipt of the message. These media are frequently used to formalize the results of oral communication. Letters and memoranda are the principal direct line of communication from the EMSP to current researchers.

3.2.2 Budget and Budget Justification

Annually the EMSP prepares a written budget document and a justification for the proposed expenditures of the program. In general the budget documentation for the program is an ongoing process. The budget documentation must be prepared for the current or execution year, the activities planned for the next year must be identified and execution guidance prepared, and the budget for activities at least 1.5 years in advance must be justified for corporate (internal) review. The audience for this documentation is in general limited, but the impact on the program can be far reaching as to program direction and program sustainability.

3.2.3 Brochures and Special Products

The Office of Science and Risk Policy at Headquarters also coordinates the development of hardcopy brochures, posters, fact sheets, exhibits, and other products for specific audiences, special events, and conferences. By using these tools and participating in conferences and other special events, the Office can exchange ideas with stakeholders whose input will be beneficial to the program. Posters and exhibits can stand alone and convey information about Science and Risk, or serve as a backdrop for personal contact by a DOE representative. Brochures provide the audience with a brief synopsis of the EMSP's program and mission, points of contact within the program, and directions as to where to find additional detailed information on the program.

3.2.4 Newsletters

Newsletters are excellent for announcing events, communicating significant accomplishments, and building teamwork among program participants. The Office of Environmental Management sponsors several newsletters, such as Initiatives and TIE Quarterly, which are effective vehicles for disseminating science and risk program information. Unlike magazines and journals, newsletters have less stringent review requirements and, therefore, offer the opportunity to present preliminary results and articles designed only to raise the awareness of the program.

3.2.5 Reports

Reporting within the EMSP is at multiple levels, ranging from progress reporting on individual research projects to the EMSP Annual Report to the Annual Report to Congress. The level of detail in these

documents varies from an in depth discussion of the procedures and results of individual projects to a limited discussion of the overall performance of the program. Formal reporting of selected research projects, project peer reviews, and the final results of the research projects provides a vehicle whereby users and developers can glean the information needed to determine whether EMSP research efforts will be useful in their efforts. The EMSP Annual Report provides an overview of the accomplishments of the program and highlights the technical accomplishments of the program, whereas the Annual Report to Congress could be expected to provide only the most significant program highlights.

3.2.6 Technical Articles

Researchers are encouraged to report their findings and results to both the scientific community and the general public in technical journals and magazines. Articles that receive technical peer review are essential for building scientific credibility and regulatory acceptance, while magazine articles directed at broad readership are helpful in attracting end-user support and commercialization opportunities. It is important that EMSP be recognized as the research sponsor for these articles to be effective in meeting these goals.

3.2.7 Guidance Documentation and Policies and Procedures

While much of the EMSP guidance is available on the EMSP website, these documents are also available in hardcopy format as well. These would include the Request for Applications Process, the Annual Report Guidance form, and the Final Report Guidance form.

3.2.8 Planning Documents

In order to communicate the planned activities for the program the following planning documents are prepared and maintained: Strategic Plan, Multi-Year Program Plan, Master Schedule, EM Science Program Metrics, Research Metrics, and Policies and Procedures. The strategic plan, Multi-Year Program Plan, and metrics are prepared or updated annually whereas the Master Schedule and Policies and Procedures are living documents and are revised on an as needed basis.

3.3 Direct Interaction

3.3.1 Briefing

Briefings could also be considered as a form of hardcopy media because they are generally accompanied with some kind of “hardcopy” presentation materials, such as overhead slides or briefing packages. However, one of the important aspects of briefings is their direct interaction with the participants. Unlike regular forms of hardcopy material, there is an opportunity to address questions and comments directly to those giving a briefing, and to explore aspects of that briefing in greater detail.

Briefings are an important communications tool for EMSP, particularly with regard to communication of results, needs, and concerns to management or advisory groups.

3.3.2 Targeted Workshops

Workshops and similar forums sponsored by the Science and Risk Policy Programs are useful communication tools because they bring researchers and technology users together. This allows the researchers to learn about and discuss actual technology needs with the end-users. At the same time, site

representatives and other end-users have an opportunity to hear about science developments directly from those conducting the R&D work.

It is important to consider that workshops can be costly to the program due to travel and lodging expenses. However, one annual meeting in a central or low cost location, such as in Chicago or Idaho Falls respectively, can prove valuable and cost effective. Such meetings could serve as a unifying force, using a specific theme to highlight pressing problems within EM. Workshops typically feature presentations of the research being conducted by program grantees, with industry and end-user participation and critiques. The Idaho EMSP staff is the primary party responsible for organizing and facilitating these events.

3.3.3 Technical and Professional Symposia

To the extent possible, program participants attend professional forums to keep the scientific community and/or the public informed with respect to the results and future needs for research initiatives. These events generally feature a variety of subject areas and disciplines, and thus are excellent vehicles for technology transfer among different fields. Direct contacts established at large, interdisciplinary events often produce the synergy of ideas that lead to innovative remediation systems.

3.3.4 Programmatic Conferences

EM sponsors a number of meetings focused on EM programs and problems, such as the Waste Management Conference, Decision-Makers Forum, and Technology Information Exchange (TIE) Workshop. Science and Risk Program participants attending these events form ties between technology developers and end-user "problem holders", which help to enhance the relevance and value of research projects to the EM clean-up program.

3.3.5 Videoconferencing

Videoconferencing provides the ability to directly interact with the involved parties and allows the use of visual aid material while at the same time not requiring the participants to all be at the same location. This offers the potential for great savings on travel budgets and the time expended in travel.

4. COMMUNICATIONS GOALS BY WBS ELEMENTS

The Work Breakdown Structure (WBS), as presented in the Multi-Year Program Plan, defines the type of work to be performed by the EMSP (The WBS can be found in Appendix B). The six major elements of the WBS are Project Management, Research Needs & Opportunities, Research Request for Applications, Portfolio Management, Research Integration, and Communications. Although Communications is identified as a separate entity in the EMSP WBS, in order to emphasize its importance in science program operations, the needs for communications and the specific communication types are manifest throughout the other elements of the WBS. Some of the sub-elements of the other five major elements are in fact communications products. The communications effort identified as a separate WBS element seeks to integrate the overall communications effort, and to provide a broad outreach effort so that all members of the EMSP audience have ready access to the information they need (See Figure 4-1).

	Congress	OMB	SCO	EM-50 Management	EM-52	Internal DOE	Public	EMAB	SLC	NAS/NRC	Site Users	Other Agencies	Current Researchers	Prospective	Industry/Private	Focus Areas/Crosscuts
Management																
Multi-Year Program Plan			X	X			X									
Performance Metrics			X	X												
Report to Congress	X	X	X													
Paths to Closure Updates	X	X		X			X									
Policy/Procedures for Researchers					X								X	X		
Management Plan			X	X	X	X	X									
Budget Request/Justification		X		X												
Congressional Liaison	X			X	X											
Conference Calls			X	X	X	X										
Quarterly Business Reviews				X	X											
Program Reviews			X	X	X	X										
Research Needs and Opportunities																
Gap Analysis Report							X				X					X
Focus Area Liaison																X
Relevance of Other Fed. Research											X	X				X
Systems Engineering Analysis											X		X	X		X
Research Requests for Applications																
Federal Reg. Request for Applications Notices													X	X		X
Opportunity Announcement													X	X		
Request for Applications Reviews														X		
Portfolio Management/Analysis																
Project Summaries				X		X					X	X			X	X
Review Results Reporting	X					X	X							X		
Progress Reports	X			X	X	X						X				X
PTS Reporting				X												
Annual Reports	X			X	X											
Research Integration																
Research Reports				X	X	X					X	X			X	X
Special Projects				X	X	X	X					X				X
EMSP Exhibitions				X			X				X	X	X	X	X	X
Brochures				X			X				X	X	X	X	X	X
General Communication																
Web Page	X	X		X		X	X				X	X	X	X	X	X
Informational Videos							X				X	X				X
CDs	X	X		X		X	X									
External Publications							X				X	X	X	X	X	X

Figure 4-1. Audience/Communications Product Matrix

4.1 Project Management

The management of the EMSP requires the communication of the goals and objectives of the program. This communication effort includes a variety of audiences but is directed primarily at the sponsors of the program and at the researchers to the extent that they are ultimately those responsible for meeting programmatic goals. Major Project Management communications products, identified within the WBS either as sub-elements or at one level below, are as follows: Strategic Plan, Multi-Year Program Plan, Master Schedule, Budget Request and Justification, Program Reviews, EM Science Program Metrics, Research Metrics, and Policies and Procedures. Other Project Management communication products not specifically identified in the WBS are a Management Plan and EMSP input to the Annual Report to Congress. In order to coordinate all of the other activities within EMSP, periodic conference calls with the program participants are conducted.

Multi-Year Program Plan

Checkbox	Responsibility: DOE-ID Concurrence: EMSP-HQ, OST-Communications	Weeks Before event
	1. Acquire guidance.	12
	2. Define objectives.	11
	3. Prepare draft.	9
	4. Coordinate draft.	8
	5. Incorporate comments.	6
	6. Final coordination.	4
	7. Distribute final.	0

Performance Metrics¾ This is an ongoing annual process.

Checkbox	Responsibility: EMSP-HQ Concurrence: EMSP-HQ, DOE-ID,EM-50	Weeks Before event
	1. Define performance objectives (These should be available from strategy documents.).	10
	2. Define methods of measuring progress toward these objectives.	10
	3. Select performance levels.	8
	4. Prepare metrics.	6
	5. Coordinate/review.	4
	6. Incorporate comments.	2
	7. Distribute.	0
	8. Track progress.	Ongoing
	9. Periodic reporting of performance.	Ongoing

Report to Congress (OST)—Schedule as directed by OST.

Checkbox	Responsibility: EMSP -HQ	Weeks Before event
	Concurrence: EMSP-HQ, OST-Communications, OST-Congressional Affairs, Public Affairs	
	1. Define themes.	
	2. Compile data.	
	3. Write Report Sections.	
	4. Coordination with EM-50/EM for overall report content.	
	5. Circulate for review and concurrence.	
	6. Reconcile comments.	
	7. Final draft.	
	8. Final coordination.	
	9. Completed report to printing.	
	10. Circulate report.	

Paths to Closure Updates—Task and schedule as determined by OST

Checkbox	Responsibility: DOE-ID	
	Concurrence: EMSP-HQ, OST-Communications, EM-50	

Policy/Procedures for Researchers

Checkbox	Responsibility: EMSP-HQ	Weeks Before event
	Concurrence: SC, DOE-ID, EMSP-HQ	
	1. Prepare draft policy.	10
	2. Coordinate internally and with SC.	8
	3. Incorporate changes.	6
	4. Final coordination.	3
	5. Distribute policy/procedures guidance.	0

Management Plan

Checkbox	Responsibility: DOE-ID	Weeks Before event
	Concurrence: EMSP-HQ, EM-50	
	1. Acquire guidance.	12
	2. Define objectives.	11
	3. Prepare draft.	9

	4. Coordinate draft.	8
	5. Incorporate comments.	6
	6. Final coordination.	4
	7. Distribute final.	0

Budget Request/Justification¾ Define needs (mortgage/new needs based Requests for Applications)

Checkbox		
	Responsibility: EMSP-HQ	Weeks Before event
	Concurrence: EMSP-HQ, EM-50, DOE-ID	

Congressional Liaison—Tasks and schedule as needed

Checkbox		
	Responsibility: EMSP-HQ	Weeks Before event
	Concurrence: EMSP-HQ, DOE-ID, SC, OST-Communications, Public Affairs, Congressional Affairs	

Conference Calls

Checkbox		
	Responsibility: As needed	Weeks Before event
	Concurrence: None	
	1. Define audience/participants.	2
	2. Define purpose.	2
	3. Set Agenda.	2
	4. Establish call in number, Contact: (202) 586 5000 for HQ line.	2
	5. Notify participants.	1
	6. Conduct call.	0
	7. Distribute action item lists and minutes (if appropriate).	-.2
	8. Track actions.	ongoing

Quarterly Business Reviews

Checkbox		
	Responsibility: DOE-HQ	Weeks Before event
	Concurrence: EMSP-HQ, DOE-ID	
	1. Review PTS/performance measure.	4
	2. Receive quarterly review presentation outline.	2
	3. Identify Schedule/cost deficiencies.	1
	4. Formulate action plan to resolve deficiencies.	1
	5. Presentation at review.	0

Quarterly Management Review

Checkbox	Responsibility: EMSP-HQ Concurrence: EMSP-HQ, DOE-ID	Weeks Before event
	1. Database evaluation and reconciliation.	4
	2. PTS evaluation.	4
	3. Commitment review.	4

Presentations to Advisory Bodies

Checkbox	Responsibility: EMSP-HQ Concurrence: EMSP-HQ, EM-50	Weeks Before event
	1. Define audience.	2
	2. Define themes.	2
	3. Collect data needed to support presentation.	1.5
	4. Produce Presentation.	1
	5. Review and coordination.	1
	6. Incorporate revisions.	.5
	7. Produce final presentation and backup/handouts.	.5
	8. Presentation.	0

4.2 Research Needs and Opportunities Identification

The activities within this WBS element are critical to the EMSP mission success. Without the proper identification of research needs and opportunities, the likelihood of EMSP research efforts being useful to others within EM decreases. Important communication products within this WBS element are the Gap Analysis and the database which define linkages of research to needs. Much of the effort needed to formulate the gap analysis involves interpersonal communication between EMSP representative and the end-users and the technology developers, such as the Focus Areas and crosscuts. Part of this review process is the assessment of the relevance of other federal research efforts and the evaluation of the regulatory impacts on the clean-up technologies and how this might impact basic research needs.

Gap Analysis Report- (drives selection for current RFAs)- relevancy¾ (Ongoing event with no specific schedule)

Checkbox	Responsibility: DOE-ID Concurrence: EMSP-HQ, STCGs, FAs	Weeks Before event
	1. Review of STCG needs.	8
	2. Matching of needs to current portfolio.	6
	3. Identification of unanswered needs.	4

	4. Categorization of needs by science category and by problem area.	2
	5. Recommendations of future RFA Areas.	1

Focus Area Liaison¾ (Ongoing activities with no schedule)

Checkbox		
	Responsibility: DOE-ID	
	Concurrence: EMSP-HQ	

Relevance of Other Federal Research¾ (Ongoing activities with no schedule)

Checkbox		
	Responsibility: DOE-ID	
	Concurrence: EMSP-HQ, OST-Communications, Public Affairs	

Systems Engineering Analysis¾ (Schedule and tasks depend on specific activity)

Checkbox		Weeks Before event
	Responsibility: DOE-ID	
	Concurrence: EMSP-HQ, OST-Communications, Public Affairs	

4.3 Research Request for Applications

Using a gap analysis submitted by EMSP in conjunction with SC, a research Request for Application that has the potential to address the knowledge gap identified in the analysis and must be bridged in order to meet EM's clean-up goals is prepared. Communications activities include coordination with SC in the preparation of the Federal Register Request for Applications Notices, identification of potential researchers, notification of researchers of policies and procedures for grants, and communication of relevance of projects back to SC.

Requests for Applications

Checkbox		Weeks Before event
	Responsibility: DOE-HQ, SC, DOE-ID	
	Concurrence: EMSP-HQ, SC	
	1. Define the Request for Applications topic based on needs evaluation.	52
	2. Prepare the Federal Register announcement in conjunction with SC.	40
	3. Send notice to researcher list.	39
	4. Arrange for Pre-application review.	39
	A. Secure meeting room.	
	B. Arrange for reviewers.	
	C. Prepare background and guidance book.	
	D. Arrange for logistic support/scoring.	
	5. Receive Pre-applications/log in/bin.	28

	6. Conduct review.	25
	7. Notify researchers of results (encourage/discourage).	25
	8. Arrange for application review (relevance).	22
	A. Secure meeting room.	
	B. Arrange for reviewers.	
	C. Prepare Background book.	
	D. Arrange for logistic support/scoring.	
	9. Receive applications.	16
	10. Review applications.	12
	11. Coordinate results of Merit Review and Relevance Review.	10
	12. Make selections.	4
	13. Notify researchers (Feedback Report).	0
	14. Negotiate grant.	
	15. Finalize grant.	
	16. Post awards on web page.	

4.4 Opportunity Announcement

Included in Request for Applications process

4.5 Review Results Reporting

Included in Request for Applications process.

4.6 Portfolio Management and Analysis

After research project selection, the EMSP tracks progress toward meeting goals, and conducts reviews of the results communicated back to the researchers, the user community, and the sponsors. Project information, which is the basis for future development and user interests in EMSP sponsored projects, needs to be clear, concise, factual, and with enough supporting details to be credible to its audience.

Annual Researcher Progress Reports

Checkbox	Responsibility: DOE-ID Concurrence: EMSP-HQ	Weeks Before event
	1. Notify researchers of the need for report.	8
	2. Gather information.	0
	3. Analyze reports for significant results.	-2
	4. Post on web page.	-4
	5. Disseminate for further use by end-users/developers.	-6

PTS Reporting

Checkbox	Responsibility: DOE-ID Concurrence: EMSP-HQ	Weeks Before event
	1. Quarterly field report update.	4
	2. ID review of reports and submittal to PTS.	2
	3 Review of distributed report by HQ and comments.	-1
	4. Defining of corrective actions.	-2
	5. Reporting on PTS in monthly/quarterly business reviews (See Reviews).	-4

EMSP Annual Reports

Checkbox	Responsibility: EMSP-HQ, DOE-ID Concurrence: EMSP-HQ, OST-Communications, Public Affairs	Weeks Before event
	1. Acquire guidance.	10
	2. Define themes.	9
	3. Layout document to comply with guidance.	9
	4. Acquire needed figures/photographs.	6
	5. Produce text.	7
	6. Review draft.	5
	7. Incorporate comments.	4
	8. Produce camera ready final.	3
	9. Final review/coordination.	2
	10. Incorporate revisions/reconcile changes.	1
	11. Final to GPO.	0
	12. Final printing.	4

4.7 Research Integration

The resultant integration of EMSP funded research into the clean-up process or development of new clean-up technologies is the ultimate measure of the success of the program. EMSP workshops on specific topics are conducted in order to make potential users or technology developers aware of the new scientific developments that can be derived from them. EMSP is represented at other national workshops and events as well. A variety of special presentation products are required. Electronic media such as CDs and videotapes are useful in conveying the vast spectrum of EMSP research to an audience with diverse interests and objectives. Brochures are needed to communicate not only the program's successes but also the outreach to new potential users and researchers.

Conferences and Workshops

Checkbox	Responsibility: DOE-ID Concurrences: EMSP-HQ	Weeks Before event
	1. Define workshop goals.	12
	2. Identify participants, and attendees.	12
	3. Set agenda.	12
	4. Select workshop site and workshop type. Notify HQ.	12
	5. Upon approval, get a site sponsor.	11
	6. With sponsor, identify who is paying what for the meetings and get documented agreement and charge numbers.	11
	7. Review previous lessons learned database.	11
	8. With sponsor, identify central location for workshop, easy access to and from the airport.	11
	9. With sponsor, identify ranges of time to hold workshop – recognizing travel to and from to be a full day for some attendees. Also, recognize Federal Employees prefer not to travel on weekends.	11
	10. With sponsor, identify the hotel(s) in that area.	11
	11. Contact the Sales Department of that hotel(s) and determine if they are available in the time frame that you need.	11
	12. If they are not, contact other hotels until you find several to choose from.	11
	13. Ensure that the hotel accommodates the government per diem rate for the guestrooms.	11
	14. Determine type of Lunch. Food services – Do you need this? If so, ask appropriate questions and costs.	11
	15. Ensure the hotel can accommodate a conference room the size you need and break out rooms if necessary (Some hotels have only one conference room, so check, How many? Is there enough variety to accommodate the flexibility in size that attendance may bring?). Visit site if needed.	11
	16. Ask for the following information for the conference room based on your needs:	11
	A. Do you need an overhead/slide projector/ video/teleconferencing/phones equipment/computer equipment/screen? If applicable. If yes, negotiate fees or take equipment.	11
	B. Do they subcontract for equipment, poster boards or other conference related expenses such as installing PA or phone equipment or do you have to do that.	11
	C. Do you need flip chart(s)/white boards/recorders/copyable white boards? – if applicable.	11
	D. Ensure water service is available.	11
	E. Ask if you can change your headcount of food prior to the day in case you have ordered too many meals.	11

	F. Can beverages or cont. breakfast be included in the room costs or be free depending on number of rooms rented and attendance?	11
	G. What are your needs for coffee/OJ/tea/milk/soda– cost?	11
	H. How will the room be set up (based on the number of attendees)– auditorium style/with tables, circular or classroom?	11
	I. Do you need a microphone/PA system, podium, or combination?	11
	J. Do you need a registration table outside of the main room (plenary or opening session)? Who will man the table?	11
	K. Do you need a hotel phone on the registration table or in the meeting room? Do you need an outside line? For modem connections or to call back long distance to get information?	11
	L. Are the breakout rooms near the main room?	11
	M. Do you need a message board for phone calls? Call in number to send messages? Is there a Fax center or Business Center in facility?	11
	N. Will the hotel make "signs" for the meeting/conference for the individual rooms? What other freebies can they offer such as amenities for both the conference participants and the hotel guests?	11
	17. Analyze best hotel combination–food and room. Include considerations for cost and type of amenities available.	11
	18. Select Date.	11
	19. Based on documented decision, select hotel and provide hotel a credit card number to hold the conference room. Block rooms for your expected number of guest attendees. When appropriate, submit purchase requisition(s).	11
	20. Ask for a draft/final of the contract so your room is confirmed prior to sending out invitations to potential attendees. If there is to be food, place order for what and when.	11
	21. Will you be taking donations for the food from the attendees?	11
	22. Create invitations and get signatures.	11
	23. Will there be special speakers–Keynote, Opening?	11
	24. Invite attendees. Send agenda and guidance on what is expected of them.	10
	25. Will there be Coffee/OJ/Tea–how much (qty)?	10
	26. In which room will the lunch be served? Determine if it's a working luncheon.	10
	27. If you have to give them a rooming list for the guest rooms, work with the hotel on this.	4
	28. Design signs for welcoming people/posting agendas.	4
	29. Determine if taking the EMSP exhibit. If yes, pack and ship.	2
	30. Check with the hotel about a week before to confirm everything.	1
	31. Make name badges and bring extra blanks to meeting.	.4
	32. Conduct workshop.	0
	33. Workshop critique forms collected at end of workshop.	
	34. After the meeting, finalize the bill with the sales personnel.	4
	35. Submit to procurement for payment.	1

	36. Do a Survey? If yes, develop, distribute, collect, and analyze.	-1
	37. Conduct a lesson learned and publish.	-2
	38. Close out workshop – letter report or proceedings.	-4

Final Research Reports

Checkbox	Responsibility: DOE-ID Concurrence: EMSP-HQ, OST-Communications, Public Affairs	Weeks Before event
	1. Prepare guidance to define content.	26
	2. Collect reports from researchers.	0
	3. Binding/categorization of reports.	-2
	4. Analysis of reports.	-4
	5. Follow up of leads in report.	-6
	6. Final preparation.	-8
	7. Document distribution/publication.	-10

Special Projects

Special Projects could include a variety of displays/reports/media making a generic template almost impossible to define at this time. Specific roles and responsibilities, as well as concurrence, will be determined on an as needed basis.

EMSP Exhibits

Checkbox	Responsibility: DOE-ID, EMSP-HQ Concurrence: EMSP-HQ, OST-Communications	Weeks before event
	1. Choose which exhibitions to display at based upon the strategy outlined in the MYPP for exhibitions. Notify HQ (Mark).	8-10
	2. Upon approval, obtain display space usually from Meeting sponsor–procure other needed equipment.	8-10
	3. Determine if video, computer, phone connections are needed. If yes, negotiate who is paying for what items?	8-10
	4. Send check(s) to appropriate organization(s) for the needed items.	8
	5. Identify who will be going with the exhibit and notify them.	5
	6. Does the designated attendee(s) have sufficient business cards? If not, get some.	3
	7. Determine if there are any changes to be made to the display.	8
	8. Determine what brochures, CD's, press releases that we want to have a part of the display. Are there enough? If not, order/make them.	8
	9. Will there be any give-aways? Laminated business cards? Candy? Pens? Notepads? If yes, procure.	8
	10. Is there any modification or customizing of the display needed? If yes, create ideas and submit to Graphic Artist or appropriate organizations.	5

	11. Make travel reservations. Plan to do setup the day before the exhibition's start and breakdown on the exhibition's last day.	3-4
	12. Review Graphics or other related materials.	3
	13. Set up display and layout new artwork, etc. Make any changes if necessary.	2
	14. Pack exhibit, support material, and utilities equipment (cords, bulbs, modem etc.).	1
	15. Send to the appropriate conference vendor.	1
	16. Travel.	.4
	17. Set up, staff, and breakdown exhibit. Consider having two people there for setup and breakdown.	.2
	18. Measure of Success e.g. count of handouts, count of visitors.	0
	19. Pack exhibit.	-.4
	20. Give to conference shipper.	-.4
	21. Store display and related materials.	-.4
	22. Submit to procurement for payment.	-.8
	23. Complete a travel report and expense report.	-2
	24. Follow up calls/emails to visitors.	-7

Brochures

Checkbox	Responsibility: DOE-ID, EMSP-HQ	Weeks before event
	Concurrence: EMSP-HQ, OST-Communications	
	1. Define need/audience/circulation.	6
	2. Define content based on above.	6
	3. Gather figures/photographs.	4
	4. Produce text.	4
	5. Draft layout.	3
	6. Coordinate/review.	2
	7. Incorporate comments.	1
	8. Produce required number of copies.	1
	9. Distribute.	0

Presentations to other Potential End-users

Checkbox	Responsibility: DOE-ID, EMSP-HQ Concurrence: EMSP-HQ, OST-Communications	Weeks before event
	1. Define audience.	2
	2. Define themes.	2
	3. Collect data needed to support presentation.	1.5
	4. Produce Presentation.	1
	5. Review and coordination.	1
	6. Incorporate revisions.	.5
	7. Produce final presentation and backup/handouts.	.5
	8. Presentation.	0

4.8 General Communications

A specific WBS element exists for the development of EMSP communications products of a general nature. These communications may be applicable to any of the other WBS elements.

Web Page—(Multiple pages are to be maintained.)

Time frames will vary based on the magnitude of changes to the pages but because this medium is particularly suited to time-sensitive material minor changes should be possible in only a few hours.

Checkbox	Responsibility: DOE-ID Concurrence: EMSP-HQ, OST-Communications, Public Affairs	Weeks Before event
	1. Define content/audience/distribution.	
	A. The content to be posted will determine the web page to be used.	
	B. Awards and Requests for Applications on HQ server, Guidance, references and Requests for Applications on SC, Portfolio, needs and grants on ID.	
	2. Layout on development server	
	3. Coordinate content with page manager for publication	
	4. Data entry/database linkages	
	5. Coordinate final production	
	6. Distribute address	
	7. Coordinate updates with page manager	

Informational Videos

Check box	Responsibility: TBD Concurrence: EMSP-HQ, OST-Communications, Public Affairs	Weeks before event
	1. Define content/audience/distribution.	16
	2. Develop storyboards.	14
	3. Collect data to be used.	12
	4. Collect videotape segments.	12
	5. Select production facilities.	12
	6. Development of dialog.	10
	7. Assembly of video segments.	8
	8. Edit and voice-overs.	6
	9. Coordinate final production.	4
	10. Distribute.	0

CD Production

Check box	Responsibility: DOE-ID Concurrence: EMSP-HQ, OST-Communications, Public Affairs	Weeks before event
	1. Define content /audience/distribution.	8
	2. Collect data.	7
	3. Compile Data.	7
	4. Arrange for CD mastering.	7
	5. Submit data CD production.	4
	6. Distribute.	0

External publication

(This does not include articles by researchers, which are at the discretion of the researchers.) Schedule is dependent on the requirements of the publication selected for the article.

Check box	Responsibility: DOE-ID Concurrence: EMSP-HQ, OST-Communications, Public Affairs	Weeks before event
	1. Coordinate/clear development of article.	
	2. Produce article.	
	3. Submit for internal review and approval.	
	4. Incorporate comments.	
	5. Final coordination (to include public affairs).	
	6. Submit to external entity for approval.	
	7. Coordinate changes suggested by journal internally	
	8. Submit revision to journal for publication	

Appendices/Attachments

EMSP POC directory

EM Science Program Points of Contact

EM Science Program – Headquarters
Provide policy and programmatic support of the EM Science Program, including leading Request for Applications of research needs, ensuring research has application to DOE clean-up problems, and ensuring results are communicated to clean-up personal.

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Office of Science
Manage the Request for Applications of research applications, the scientific review process and technical management of the research program.

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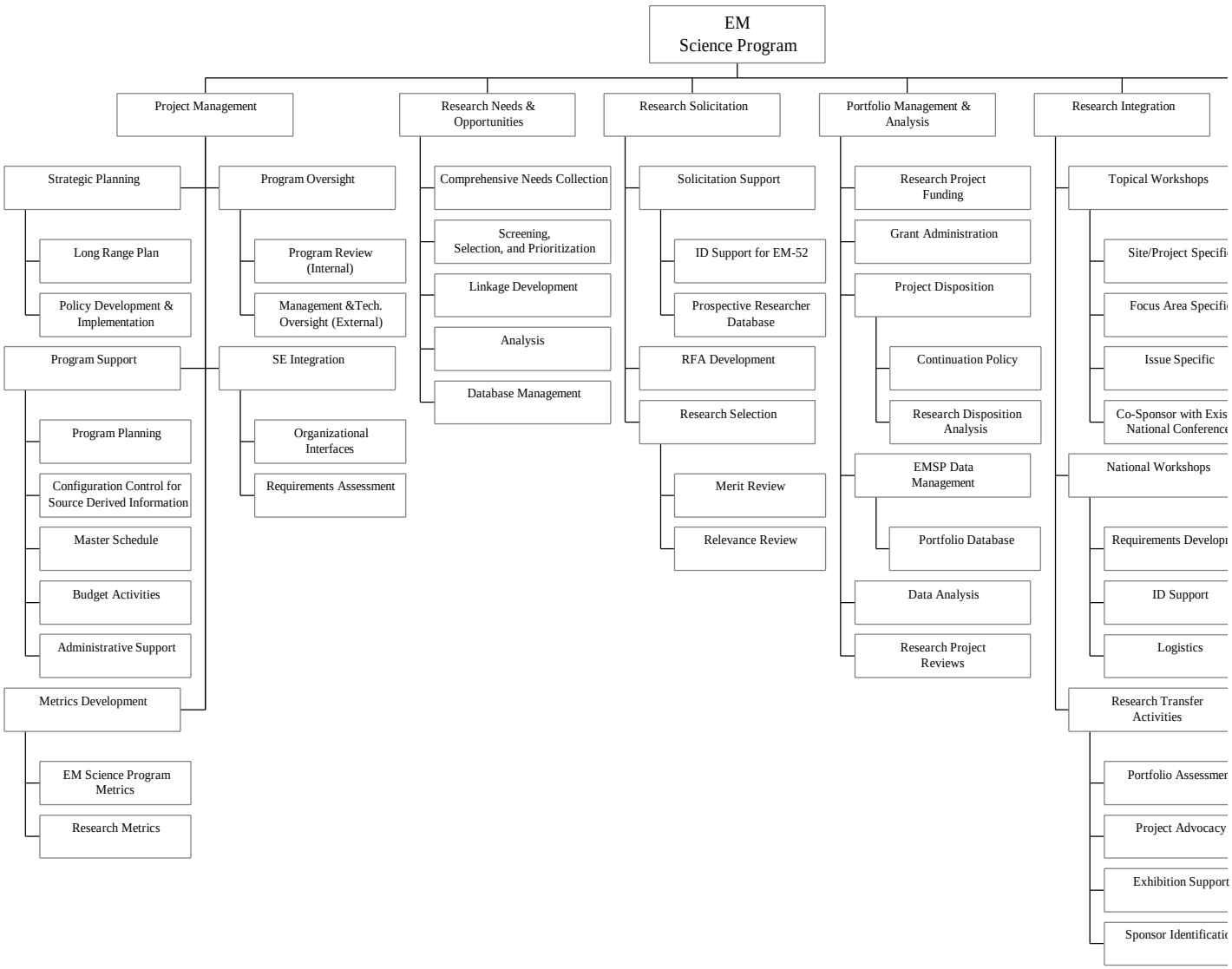
EM Science Program - INEEL EM Science Program - INEEL
Provides assistance to the EM Science Program in conducting needs analysis, financial management and procurement, and serves as interface with Focus Areas, Crosscutting programs, and other DOE field offices.

APPENDIX B: EMSP Work Breakdown Structure and Data Dictionary

EMSP Work Breakdown Structure



WBS Dictionary

WBS Title	Description
Program Management	
Strategic Planning	The tasks related Long range Planning, Policy Development and implementation, and other high level policy and planning activities
Long Range Plan	These would be roadmapping type activities to determine "where we our going" long term
Policy development and implementation	These activities include developing the infrastructure structure needed to get us to where the EMSP wants to go, policy statements, and the "who and how" is the EMSP going to get there
Program Support	This task includes program planning and budgeting, the development and maintenance of the master schedule, and administrative support
Program Planning	Development of the plan and interfaces necessary for the efficient and effective operation of the EMSP.
Master Schedule	Development and maintenance of the integrated schedule for all of the EMSP activities and interfaces with other programs. The objective of which is to provide a single schedule form which all EMSP related activities can be seen at a glance
Budget Activities	Developing and monitoring budgets
Administrative Support	Printing, coping, secretarial, editorial and other related PM support
Metrics Development	This task consists of the activities related to the development of quantitative and qualitative measures for both the program and funded research. The objective of these tasks is to provide a defensible basis for the value of the program and to develop a predictive mechanism for the impact of the research on EM clean-up.
EMSP Metrics	Activities related to the development of quantitative and qualitative measures for the program
Research Metrics	Activities related to the development of quantitative and qualitative measures for funded research
Program Oversight	
Program Review (Internal)	Internal to EM review of the EMSP such as Internal Review Boards, EMSP annual review
Management & technical Oversight (External)	External to EM such as EMAB or NAS/NRC reviews or other reviews commissioned by EM or Congress
SE Integration	This task includes the activities to ensure that the EMSP is a traceable, defensible program that is both efficient and effective in meeting its intended mission
Organizational Interfaces	Identify and manage the interfaces necessary to ensure efficient effective operation of the EMSP program within its organizations and those that are influenced
Configuration Control	Develop, manage, and control at the necessary level both databases and documents
Requirements Assessment	Mission and program requirements updates and assessment to ensure that the EMSP is meeting our customers expectations
DOE-EM Complex Integration	Activities related to interfacing with the systems engineers working the 2006 accelerated clean-up plan and other complex wide efforts that are related to the EMSP
Research Needs & Opportunities	
Needs & Opportunities Identification	This Level three covers the activities related to Collection, Analysis, and validation of research needs.

Collection	This task is related to the collection of Technology/Science Needs from various sources such as TMS, STCG calls, EMI calls, Focus Areas, Privatization Needs etc.
Screening, Selection, and Prioritization	Covers the activities necessary to develop a complex-wide prioritization of the Needs & Opportunities.
Linkage Development	Contains the activities associated with developing the ties between research projects, science needs, technology needs, Hi Impact clean-up projects, and other related breakdowns such as EM problem area or science category.
Analysis	Covers the activities necessary to identify gaps between research and research needed. The list of potential gaps is then sent to the STCGs and the Focus Areas. This information is used for formulation of future solicitations.
Needs & Opportunities Assessment	N&OA task covers analysis of the current research portfolio against the needs & Opportunities to identify gaps between research and needed research and develop a complex-wide prioritization of the needs & Opportunities.
Database Management	The task associated with maintaining a traceable, configuration controlled database.
Research Solicitation	The tasks related to identifying the potential research and selections to be funded.
Solicitation Support	Support activities tasks related to performing the research solicitation.
ID Support to EM-52	DOE-ID support activities for HQ related to Research Solicitation.
Prospective researcher Database	Maintenance of the database for potential researchers.
Solicitation Development	Activities related to the development of the Request for Assistance.
Research Selection	Tasks related to the Merit and Relevance Review.
Pre-application Review	
Merit review	Activities relating to planning, conducting, and documenting the merit review.
Relevance Review	Activities relating to planning, conducting, and documenting the relevance review.
Review Feedback	
Portfolio Management and Analysis	The tasks related to funding, managing, continuation and closeout of the needed research.
Research Project Funding	Activities related to the funding of the chosen research projects.
Project Disposition	Project management activities related to the disposition and closeout of each project at the end of its funding cycle.
Continuation Policy	Activities relating to the development of the policy concerning the disposition options available to maturing research such as continued EMSP funding, transfer to SBIR, Focus Areas, ASTD, CRADA, Industrial Partner, other SC funding, other agency funding, or not funding.
Research Disposition Analysis	Activities relating to the evaluation and recommendation of each maturing research project regarding what is the next step in the transfer of the research knowledge.
EMSP Data Management	
Portfolio Database	Activities related to the maintenance of the portfolio database including updates after each new solicitation.
Data Analysis	Activities related to supporting ad hoc analysis and reporting requests.
Research Project Reviews	Activities related to both technical oversight and programmatic reviews of the funded research portfolio.

Research Integration	The tasks related to getting the research transferred down the technology development cycle and providing vehicles for the researcher to better understand the environmental clean-up problems through topical and national workshops and other research transfer activities.
Topical Workshops	These tasks include activities related to the planning, conducting and close-out of all EMSP workshops.
Site/project Specific	Activities related to the planning, conducting, reporting and close-out of site or project specific workshops conducted for the purpose of transferring knowledge between the researchers and the end-users.
Focus Area Specific	Activities related to the planning, conducting, reporting and close-out of FA specific workshops conducted for the purpose of transferring knowledge between the researchers and the end-users.
Issue Specific	Activities related to the planning, conducting, reporting and close-out of issue or problem specific workshops conducted for the purpose of transferring knowledge between the researchers and the end-users.
Cosponsor National Conference(s)	Activities and funding necessary to develop session concurrently with existing appropriate national conferences.
National Workshop	The tasks related to the planning, execution, conducting and close-out of the EMSP Workshop.
Requirements Development	Activities related to the development of the objectives, customer requirements and Functional requirements necessary to conduct the National EMSP workshop.
Id Support	Activities related to the ad hoc requests that come into Idaho in support of the national workshop.
Logistics	Activities related to the procurement, monitoring, and performance of the meeting logistics by a subcontracted meeting coordinator.
Research Transfer Activities	The more one-on-one tasks related to building rapport between the individual research project and the user of that research.
Portfolio Assessment	Activities related to identifying the type of advocate and transfer needed for each piece of maturing research from the research disposition analysis.
Project Advocacy	The short-term activities related to the planning, implementing and transferring of the research identified in the above activity.
Sponsor Identification	The long-term activities related to development and support for the research advocate identified in the portfolio assessment for those research projects that need long-term sponsorship.
Communications	The tasks related to getting the word out about the EMSP and its works to both internal and external stakeholder groups such as researchers, end-user s, FA, Congress and the general public.
Web Page	Activities related to development and maintenance of the EMSP web page.
Focus Area Liaison Support	Activities related to developing and maintain the relationship with the FA at the national level.
Congressional Liaison	Activities related to liaison with Congress on EMSP related issues.
News Articles	Activities related to providing articles for press releases and other communication activities such as writing, editing, or sponsoring.
Calendar	Activities related to the development and updating a calendar of events related to the EMSP.
Exhibitions	Activities related to support of any conference where there is a FA presence.

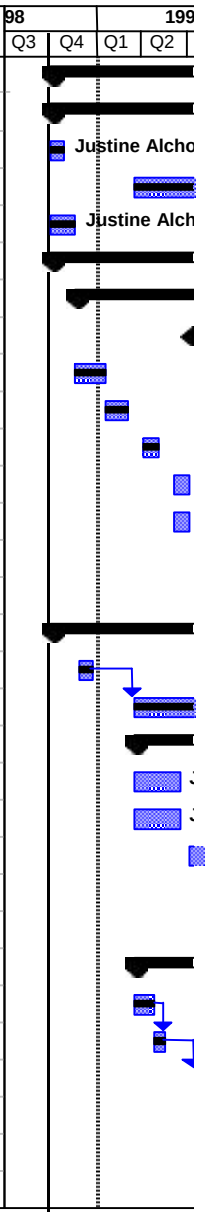
APPENDIX C: EMSP Master Schedule

The EMSP has developed a master schedule to capture EMSP activities, track progress, and support resource integration across the program. The master schedule has been organized to reflect the work scope delineation identified in the EMSP Work Breakdown Structure.

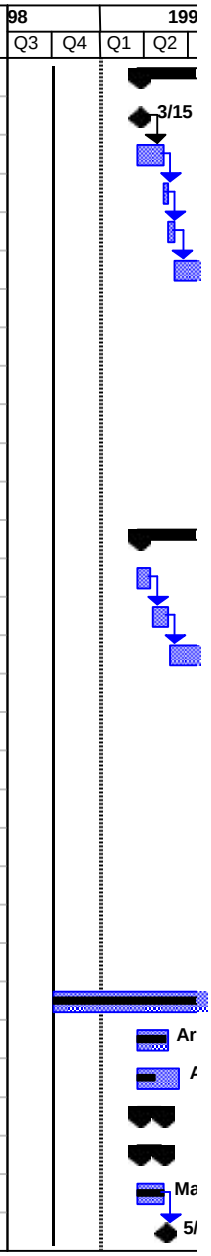
The current version of the schedule has been included in this appendix. The schedule is considered a "living" document and reflects program content and status at a specified date referenced in the upper left-hand corner of the schedule. The schedule is updated on a periodic basis and later versions will capture any significant revisions in program status or direction.

ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM MASTER SCHEDULE

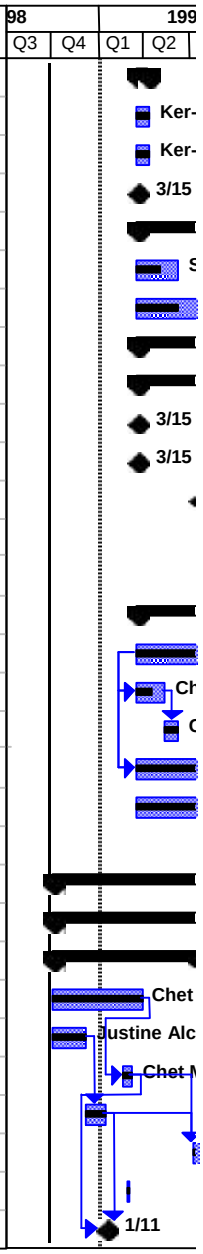
ID	Task Name	Start	Finish
1	**EMSP Program Management**	**Tue 9/29/98**	**Wed 7/5/00**
2	**Strategic Planning**	**Tue 9/29/98**	**Wed 7/5/00**
3	R&D Program Plan Updates	Tue 9/29/98	Mon 10/26/98
4	Accelerated Cleanup Plan Narrative Updates	Mon 3/15/99	Wed 9/29/99
5	EM-50 Strategic Plan Update	Tue 9/29/98	Mon 11/16/98
6	**Program Support**	**Tue 9/29/98**	**Wed 7/5/00**
7	**PBS Milestones**	**Mon 11/16/98**	**Wed 7/5/00**
8	(SP-M023) Annual EMSP Workshop	Thu 7/1/99	Mon 7/5/99
9	(SP-M024) Develop and Issue FY 1999 RFA	Mon 11/16/98	Fri 1/15/99
10	(SP-M025) FY 1999 Pre-Proposals Due	Fri 1/15/99	Mon 3/1/99
11	(SP-M026) FY 1999 Full Proposals Due	Thu 4/1/99	Fri 4/30/99
12	(SP-M027) Review FY 1999 Proposals for Scientific Merit	Tue 6/1/99	Thu 7/1/99
13	(SP-M028) Review FY 1999 Proposals for Relevancy to EM Needs	Tue 6/1/99	Thu 7/1/99
14	(SP-M029) Award FY 1999 Research Awards	Mon 8/2/99	Wed 9/29/99
15	(SP-M030) Annual EMSP Workshop	Mon 7/3/00	Wed 7/5/00
16	**Program Planning**	**Tue 9/29/98**	**Fri 6/30/00**
17	Master Schedule Development	Tue 11/24/98	Mon 12/21/98
18	Master Schedule Maintenance	Mon 3/15/99	Fri 1/21/00
19	**Budget Activities**	**Mon 3/15/99**	**Thu 5/18/00**
20	***External PBS "Science Component" Guidance Development***	Mon 3/15/99	Fri 6/11/99
21	EMSP PBS Development/Submission	Mon 3/15/99	Fri 6/11/99
22	PEG Development	Thu 7/1/99	Fri 7/30/99
23	TTP Development	Mon 8/2/99	Thu 9/30/99
24	PTS Development	Wed 12/1/99	Tue 2/29/00
25	**FY 99 Budget Activities**	**Mon 3/15/99**	**Tue 5/9/00**
26	Program Offices Allocate FY 99 Appropriation to Field	Mon 3/15/99	Fri 4/23/99
27	Field Reviews Allocations/Revises Mgmt. Commitments	Mon 4/26/99	Fri 5/14/99
28	FY 99 First Quarter Management Review	Mon 7/12/99	Fri 8/6/99
29	FY 99 Second Quarter Management Review	Fri 10/8/99	Thu 11/4/99
30	FY 99 Third Quarter Management Review	Wed 1/12/00	Tue 2/8/00
31	FY 99 Fourth Quarter Management Review	Wed 4/12/00	Tue 5/9/00



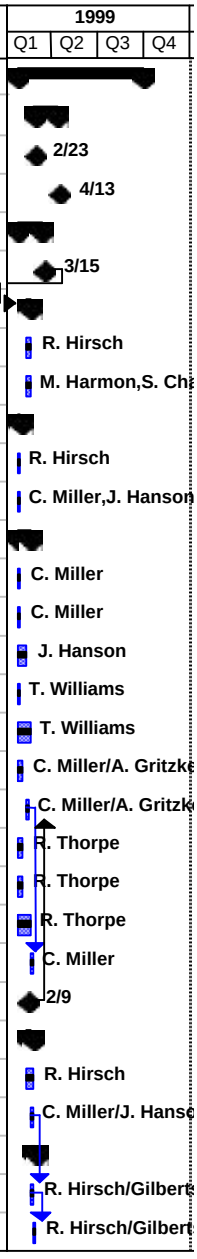
ID	Task Name	Start	Finish
32	**FY 2000 Budget Activities**	**Mon 3/15/99**	**Tue 2/29/00**
33	Program Offices Receive FY 2000 Decision from OMB	Mon 3/15/99	Mon 3/15/99
34	HQ/ID Prepares FY 2000 Funding Request (CBR)	Mon 3/15/99	Wed 5/5/99
35	DOE Transmits FY 2000 Budget to Congress/Press Conference	Thu 5/6/99	Wed 5/12/99
36	FY 2000 Congressional Staff Briefings	Thu 5/13/99	Wed 5/26/99
37	DOE-HQ Budget Testimony Before Congress	Thu 5/27/99	Wed 7/21/99
38	Senate Appropriations Committee FY 2000 Budget Mark up	Thu 8/26/99	Tue 9/21/99
39	EM Develops Initial Approved Funding Program (AFP)	Wed 9/22/99	Tue 12/14/99
40	Field Develops FY 2000 Management Commitments	Wed 9/22/99	Tue 12/14/99
41	Congress Appropriates Funding for FY 2000	Wed 12/15/99	Tue 12/21/99
42	EM Allocates FY 2000 Appropriation to Field Offices	Wed 12/22/99	Tue 2/8/00
43	Field Reviews Appropriations/Revises Mgmt. Commitments	Wed 2/9/00	Tue 2/29/00
44	**FY 2001 Budget Activities**	**Mon 3/15/99**	**Thu 5/18/00**
45	EM Develops FY 2001 Budget Guidance and Targets for Field Call	Mon 3/15/99	Fri 4/9/99
46	HQ CFO Transmits FY 2001 Field Call	Mon 4/12/99	Fri 5/14/99
47	Field Develops and Submits FY 2001 Input to HQ	Mon 5/17/99	Tue 7/27/99
48	HQ Analyzes FY 2001 Field Input	Wed 7/28/99	Thu 8/26/99
49	HQ Develops FY 2001 Corporate Review Budget for CFO	Fri 8/27/99	Wed 9/22/99
50	EM Receives Secretarial FY 2001 Budget Decision & Prepares OMB Submission	Thu 12/11/99	Mon 12/13/99
51	DOE Transmits FY 2001 Budget to OMB	Mon 12/13/99	Mon 12/13/99
52	HQ Responds to OMB Requests & Briefings for FY 2001 Budget	Tue 12/14/99	Mon 2/28/00
53	EM Receives FY 2001 Decisions from OMB	Tue 2/29/00	Thu 3/9/00
54	EM Prepares FY 2001 Congressional Budget Request	Fri 3/10/00	Thu 5/4/00
55	DOE Transmits FY 2001 to Congress/Press Conference	Fri 5/5/00	Thu 5/18/00
56	Administrative Support Activities	Tue 9/29/98	Fri 6/30/00
57	Multi-Year Program Plan (FY 2000)	Mon 3/15/99	Fri 5/14/99
58	Metrics Development	Mon 3/15/99	Fri 6/4/99
59	**Program Oversight**	**Mon 3/15/99**	**Thu 5/6/99**
60	**Internal Program Review**	**Mon 3/15/99**	**Thu 5/6/99**
61	Research Project Completion Report Guidance	Mon 3/15/99	Thu 5/6/99
62	Research Completion Reports Complete (See Note)	Thu 5/6/99	Thu 5/6/99



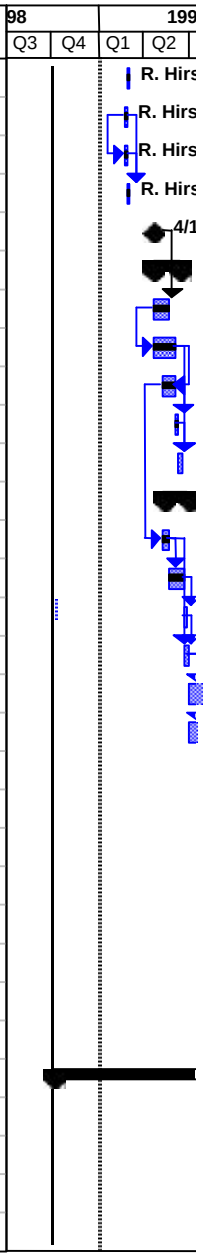
ID	Task Name	Start	Finish
63	**External Technical Oversight**	**Mon 3/15/99**	**Fri 4/9/99**
64	EMAB Recommendations Response	Mon 3/15/99	Fri 4/9/99
65	NRC SS Contamination Letter/Report Response	Mon 3/15/99	Fri 4/9/99
66	Business Review (Monthly as scheduled)	Mon 3/15/99	Mon 3/15/99
67	**Systems Engineering Integration**	**Mon 3/15/99**	**Wed 9/1/99**
68	Requirements Assessment	Mon 3/15/99	Fri 6/4/99
69	Interface Development and Management	Mon 3/15/99	Fri 7/30/99
70	**DOE Complex-Wide Integration**	**Mon 3/15/99**	**Wed 9/1/99**
71	**Paths to Closure Support**	**Mon 3/15/99**	**Wed 9/1/99**
72	STCG Data Call Complete	Mon 3/15/99	Mon 3/15/99
73	Focus Areas Complete Response to Needs	Mon 3/15/99	Mon 3/15/99
74	Paths to Closure Report Issued	Thu 7/15/99	Thu 7/15/99
75	Final Needs Guidance Issued	Wed 9/1/99	Wed 9/1/99
76			
77	**Research Needs and Opportunities (N&O)**	**Mon 3/15/99**	**Fri 3/10/00**
78	N&O Identification	Mon 3/15/99	Fri 7/16/99
79	N&O Assessment/Validation	Mon 3/15/99	Fri 5/7/99
80	N&O Gap Analysis (Solicitation Support)	Mon 5/10/99	Fri 6/4/99
81	Needs & Linkages Database Management	Mon 3/15/99	Fri 3/10/00
82	EM Integration Support	Mon 3/15/99	Fri 3/10/00
83			
84	**Research Solicitation**	**Tue 9/29/98**	**Thu 9/30/99**
85	**FY 99 Research Solicitation**	**Tue 9/29/98**	**Thu 9/30/99**
86	**Solicitation Support**	**Tue 9/29/98**	**Mon 7/19/99**
87	FR 99-14 (Low-Level Dose) Draft Development/Review	Tue 9/29/98	Wed 3/24/99
88	FR 99-06 Vadose Zone Draft Development/Review	Tue 9/29/98	Mon 12/7/98
89	Final FR 99-14 Development	Tue 2/16/99	Fri 3/5/99
90	Final 99-06 Development	Tue 12/8/98	Mon 1/11/99
91	FY99 Solicitation Notification Ltr	Tue 7/6/99	Mon 7/19/99
92	Issue 99-14	Mon 2/22/99	Mon 2/22/99
93	Issue FY 99-06 RFA	Mon 1/11/99	Mon 1/11/99



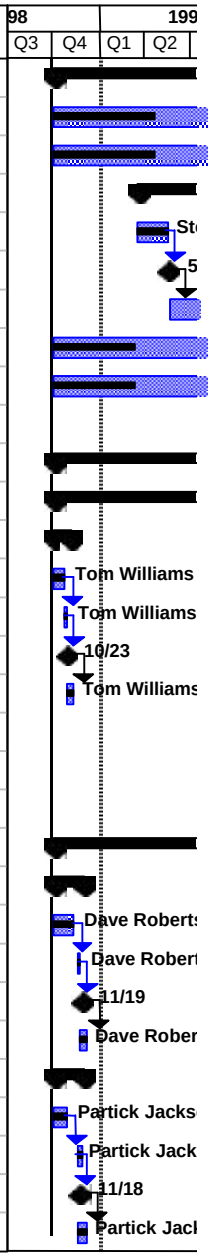
ID	Task Name	Start	Finish
94	**Research Selection**	**Thu 1/21/99**	**Thu 9/30/99**
95	**99-14 (Low Dose) Solicitation**	**Tue 2/23/99**	**Tue 4/13/99**
96	FR 99-14 Pre-Proposals Due	Tue 2/23/99	Tue 2/23/99
97	99-14 Formal Applications Due	Tue 4/13/99	Tue 4/13/99
98	**99-06 Vadose Zone Pre-Proposal Review**	**Thu 1/21/99**	**Mon 3/15/99**
99	FR 99-06 Pre-Proposals Due	Mon 3/15/99	Mon 3/15/99
100	**Identify 99-06 Pre-proposal Reviewers**	**Tue 2/9/99**	**Thu 2/18/99**
101	Identify Peer Reviewers	Tue 2/9/99	Thu 2/18/99
102	Identify Relevance Reviewers	Tue 2/9/99	Tue 2/16/99
103	**Identify/Secure 99-06 PP Review Location**	**Thu 1/21/99**	**Mon 1/25/99**
104	Peer Review	Thu 1/21/99	Mon 1/25/99
105	Relevance Review	Thu 1/21/99	Mon 1/25/99
106	**Prepare 99-06 PP Review Notebook**	**Thu 1/21/99**	**Wed 2/17/99**
107	Write guidance	Thu 1/21/99	Tue 1/26/99
108	Write Invitation Letter	Thu 1/21/99	Tue 1/26/99
109	Provide HN Vadose Zone Roadmap	Fri 1/22/99	Tue 2/9/99
110	Assemble Needs (STCG, FA)	Fri 1/22/99	Mon 1/25/99
111	Prepare Gap Analysis	Thu 1/21/99	Tue 2/16/99
112	Prepare Agenda for Review	Thu 1/21/99	Fri 1/29/99
113	Prepare list of all Preproposals	Wed 2/10/99	Fri 2/12/99
114	Prepare Score Sheet	Thu 1/21/99	Fri 1/29/99
115	Prepare Tabs	Thu 1/21/99	Fri 1/29/99
116	Assemble Notebook	Tue 1/26/99	Tue 2/16/99
117	Distribute Notebook	Wed 2/17/99	Wed 2/17/99
118	Pre-Proposals Due	Tue 2/9/99	Tue 2/9/99
119	**99-06 Pre-Proposal Review**	**Wed 2/10/99**	**Mon 2/22/99**
120	Peer Review	Wed 2/10/99	Mon 2/22/99
121	Relevance Review	Wed 2/17/99	Thu 2/18/99
122	**99-06 PP Review Feedback**	**Fri 2/19/99**	**Tue 3/2/99**
123	Prepare Feedback E-Mail Messages	Fri 2/19/99	Mon 2/22/99
124	Prepare Address Lists	Tue 2/23/99	Thu 2/25/99



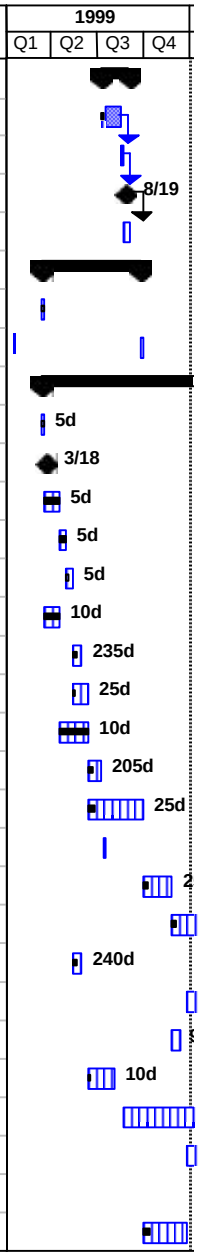
ID	Task Name	Start	Finish
125	E-Mail Messages	Mon 3/1/99	Mon 3/1/99
126	Prepare Feedback Letters	Fri 2/19/99	Thu 2/25/99
127	Prepare Address Labels	Fri 2/19/99	Thu 2/25/99
128	Assemble, Package and Mail	Fri 2/26/99	Tue 3/2/99
129	Full Proposals due	Mon 4/19/99	Mon 4/19/99
130	**Merit Review Process**	**Mon 4/19/99**	**Fri 6/11/99**
131	Peer Review Guidance Package Development	Mon 4/19/99	Fri 5/21/99
132	SC Develops Peer Review Panel	Mon 4/19/99	Tue 6/1/99
133	EM Recommendations for Peer Review to SC	Wed 5/5/99	Tue 6/1/99
134	Low Dose Merit Review	Wed 6/2/99	Fri 6/4/99
135	Vadose Zone Merit Review	Mon 6/7/99	Fri 6/11/99
136	**Relevance Review Process**	**Wed 5/5/99**	**Fri 6/25/99**
137	Relevance Review Guidance Development	Wed 5/5/99	Tue 5/18/99
138	Relevance Review Panel Development	Wed 5/19/99	Tue 6/15/99
139	Low Dose Relevance Review	Wed 6/16/99	Wed 6/16/99
140	Vadose Zone Relevance Review	Mon 6/21/99	Fri 6/25/99
141	Final Award Determinations	Mon 6/28/99	Fri 7/23/99
142	EM/ER Budget Determinations	Mon 6/28/99	Fri 7/16/99
143	Research Project Selection	Mon 7/19/99	Fri 8/13/99
144	Award Packages to ID for Portfolio Management	Fri 8/13/99	Fri 8/13/99
145	Award Research	Mon 8/16/99	Thu 9/2/99
146	Research Awarded	Thu 9/2/99	Thu 9/2/99
147	HQ Developed/Issues Press Release	Fri 9/3/99	Thu 9/16/99
148	Develop Review Feedback Comments/Letters	Fri 9/3/99	Thu 9/30/99
149	Issue Letters to Awardees	Fri 9/3/99	Thu 9/30/99
150			
151	**Research Portfolio Management and Analysis**	**Tue 9/29/98**	**Thu 9/30/99**
152	**Research Project Funding**	**Mon 8/9/99**	**Thu 9/30/99**
153	National Lab TTP Development	Mon 8/9/99	Fri 9/3/99
154	University Award Grant Procurement Development	Mon 8/9/99	Fri 9/3/99
155	Outyear Funding Table /PEG Development	Mon 9/6/99	Thu 9/30/99



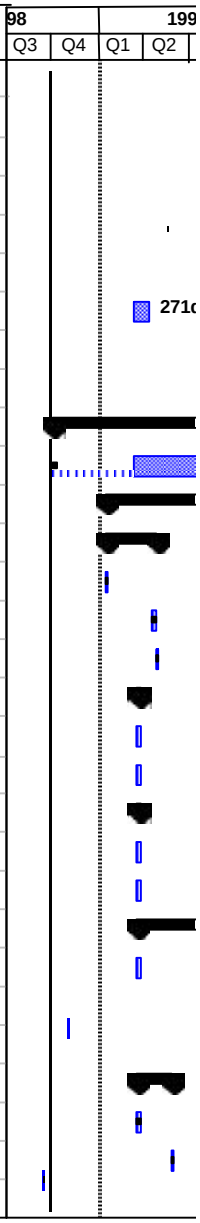
ID	Task Name	Start	Finish
156	**Grant Administration**	**Tue 9/29/98**	**Mon 9/27/99**
157	PTS Support	Tue 9/29/98	Mon 9/27/99
158	Procurement Management Support	Tue 9/29/98	Mon 9/27/99
159	**Project Disposition**	**Mon 3/15/99**	**Fri 8/6/99**
160	Continuation Policy Development	Mon 3/15/99	Fri 5/14/99
161	Issue Policy Statement	Fri 5/14/99	Fri 5/14/99
162	FY 96 Research Disposition Analysis	Mon 5/17/99	Fri 8/6/99
163	EMSP Data Management	Tue 9/29/98	Wed 9/29/99
164	Data Analysis	Tue 9/29/98	Wed 9/29/99
165			
166	**Research Integration**	**Tue 9/29/98**	**Thu 7/6/00**
167	**Topical Workshops**	**Tue 9/29/98**	**Thu 7/6/00**
168	**Site/Project Specific Workshops**	**Tue 9/29/98**	**Fri 11/6/98**
169	INEEL: FRST/D&D/HLW Workshop Prep	Tue 9/29/98	Tue 10/20/98
170	INEEL: FRST/D&D/HLW Workshop	Wed 10/21/98	Fri 10/23/98
171	INEEL: FRST/D&D/HLW Workshop Complete	Fri 10/23/98	Fri 10/23/98
172	INEEL: FRST/D&D/HLW Workshop Closeout	Mon 10/26/98	Fri 11/6/98
173	**Subject Specific Workshops**	**Fri 10/1/99**	**Tue 10/5/99**
174	Health, Ecology, and Risk (non-ionizing radiation) - ANL East estimated	Fri 10/1/99	Tue 10/5/99
175	SCFA - Vadose Zone New Awards Kick-Off (estimated dates)	Fri 10/1/99	Tue 10/5/99
176	**Focus Area Specific Workshop**	**Tue 9/29/98**	**Wed 9/1/99**
177	**Hanford: TFA Workshop**	**Tue 9/29/98**	**Thu 12/3/98**
178	Hanford: TFA Workshop Prep	Tue 9/29/98	Mon 11/9/98
179	Hanford: TFA Workshop	Tue 11/17/98	Thu 11/19/98
180	Hanford: TFA Workshop Complete	Thu 11/19/98	Thu 11/19/98
181	Hanford: TFA Workshop Closeout	Fri 11/20/98	Thu 12/3/98
182	**Savannah River: D&D Workshop**	**Tue 9/29/98**	**Wed 12/2/98**
183	Savannah River : D&D Workshop Prep	Tue 9/29/98	Mon 10/26/98
184	Savannah River : D&D Workshop	Tue 11/17/98	Wed 11/18/98
185	Savannah River : D&D Workshop Complete	Wed 11/18/98	Wed 11/18/98
186	Savannah River : D&D Workshop Closeout	Thu 11/19/98	Wed 12/2/98



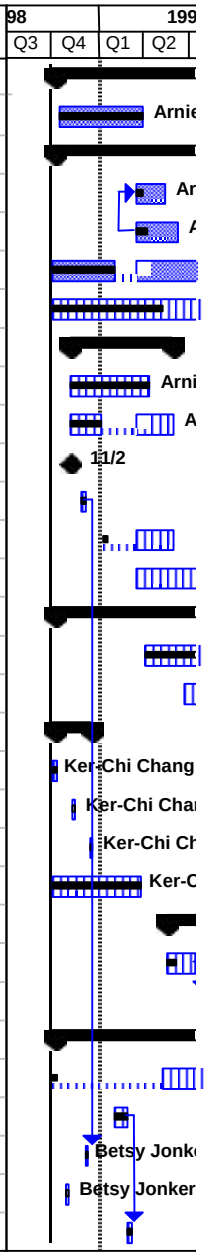
ID	Task Name	Start	Finish
187	**Oak Ridge Workshop: TBD**	**Tue 7/6/99**	**Wed 9/1/99**
188	ORNL Workshop Prep	Tue 7/6/99	Mon 8/16/99
189	ORNL Workshop	Tue 8/17/99	Thu 8/19/99
190	ORNL Workshop Complete	Thu 8/19/99	Thu 8/19/99
191	ORNLWorkshop Closeout	Fri 8/20/99	Wed 9/1/99
192	**Co-sponsorship Workshops**	**Wed 3/10/99**	**Mon 9/27/99**
193	CMST Workshop	Wed 3/10/99	Fri 3/12/99
194	ACS Workshop - New Orleans	Wed 9/22/99	Mon 9/27/99
195	**National Workshop**	**Thu 3/11/99**	**Thu 4/27/00**
196	Set Workshop Date and Location	Thu 3/11/99	Thu 3/18/99
197	Workshop Date and Location Set	Thu 3/18/99	Thu 3/18/99
198	Organize Steering Committee (S.C.)	Fri 3/19/99	Thu 4/15/99
199	Define S.C. Roles and Responsibilities	Fri 4/16/99	Thu 4/29/99
200	Identify Workshop Objectives and Measures of Success	Fri 4/30/99	Thu 5/13/99
201	Identify Co-Hosts for Workshop	Fri 3/19/99	Thu 4/15/99
202	S.C. Selects Workshop Theme	Fri 5/14/99	Thu 5/27/99
203	Organize Technical Program Committee (TPC)	Fri 5/14/99	Thu 6/10/99
204	Workshop Hosts Provide Funding for Workshop	Fri 4/16/99	Thu 6/10/99
205	Invite Plenary and Keynote Speakers	Fri 6/11/99	Thu 7/8/99
206	Set Draft Workshop Agenda	Fri 6/11/99	Thu 9/30/99
207	Natl. workshop Planning Meeting	Mon 7/12/99	Thu 7/15/99
208	Develop Mailing List	Fri 10/1/99	Thu 11/25/99
209	Announce Final Agenda (Publish)	Fri 11/26/99	Thu 1/20/00
210	Set Workshop Participation Fee	Fri 5/14/99	Thu 5/27/99
211	Develop Web Page for Workshop	Fri 12/24/99	Thu 1/20/00
212	Formal Anouncement to Researchers	Fri 11/26/99	Thu 12/9/99
213	Obtain Contract for Telecommunications Support	Fri 6/11/99	Thu 8/5/99
214	Telecommunications Support	Fri 8/20/99	Thu 4/27/00
215	Develop Workshop Poster and Abstract Guidance	Fri 12/24/99	Thu 1/20/00
216	Announce Workshop to End Users	Fri 1/21/00	Thu 2/3/00
217	S.C. Obtains Exhibitors	Fri 10/1/99	Thu 12/23/99



ID	Task Name	Start	Finish
218	Announce Workshop to General Public	Fri 2/18/00	Thu 3/2/00
219	Workshop Registration Process	Fri 1/21/00	Thu 3/16/00
220	TPC Provides Outline for Breakout Sessions	Fri 1/21/00	Thu 2/17/00
221	Invite Breakout Session Chairs and Facilitators	Fri 2/18/00	Thu 3/16/00
222	Abstracts, Poster, and Reports to OSTI from all Researchers	Thu 1/20/00	Thu 1/20/00
223	National Workshop Readiness Review	Fri 1/21/00	Tue 1/25/00
224	Set 3rd National Workshop Date and Location	Thu 3/11/99	Wed 4/7/99
225	EMSP National Workshop	Fri 4/21/00	Thu 4/27/00
226	EMSP National Workshop Complete	Thu 4/27/00	Thu 4/27/00
227	**Research Transfer Activities**	**Tue 9/29/98**	**Thu 7/6/00**
228	Focus Area Relations	Tue 9/29/98	Fri 9/24/99
229	**Focus Area Activities**	**Thu 1/14/99**	**Thu 7/6/00**
230	**Subcon Focus Area Activities (SCFA)**	**Thu 1/14/99**	**Wed 4/28/99**
231	Subcon Kick Off Meeting	Thu 1/14/99	Fri 1/15/99
232	Subcon IRB Meeting	Wed 4/14/99	Wed 4/14/99
233	SCFA Mid-Year Review - Augusta	Mon 4/26/99	Wed 4/28/99
234	**Tanks Focus Area (TFA) Activities**	**Mon 3/15/99**	**Mon 3/15/99**
235	TFA Kick Off Meeting	Mon 3/15/99	Mon 3/15/99
236	TFA IRB Meeting	Mon 3/15/99	Mon 3/15/99
237	**Mixed Waste Focus Area (MWFA) Activities**	**Mon 3/15/99**	**Mon 3/15/99**
238	MWFA Kick Off Meeting	Mon 3/15/99	Mon 3/15/99
239	MWFA IRB Meeting	Mon 3/15/99	Mon 3/15/99
240	**Nuclear Materials Focus Area NMFA (formerly PFA) Activities**	**Mon 3/15/99**	**Thu 7/6/00**
241	PFA Kick Off Meeting	Mon 3/15/99	Mon 3/15/99
242	LANL Actinide Chemistry Workshop	Thu 7/15/99	Mon 7/19/99
243	NMFA Technical Advisory Panel (TAP)	Mon 7/3/00	Thu 7/6/00
244	**Deactivation & Decommissioning (D&D) Focus Area Activities**	**Mon 3/15/99**	**Wed 5/26/99**
245	D&D Kick Off Meeting	Mon 3/15/99	Mon 3/15/99
246	D&D Mid-Year Review - Morgantown	Mon 5/24/99	Wed 5/26/99
247			



ID	Task Name	Start	Finish
248	**Communications**	**Tue 9/29/98**	**Fri 3/10/00**
249	EMSP Communications Plan	Thu 10/15/98	Tue 3/30/99
250	**Web Page Activities**	**Tue 9/29/98**	**Fri 11/12/99**
251	Web Page Consolidation	Mon 3/15/99	Fri 5/7/99
252	Web Page Development	Mon 3/15/99	Fri 6/4/99
253	Web Page Management	Tue 9/29/98	Fri 11/12/99
254	Congressional Liaison Support	Tue 9/29/98	Mon 9/27/99
255	**Publications**	**Mon 11/2/98**	**Fri 5/28/99**
256	Annual Report	Mon 11/2/98	Fri 4/9/99
257	Project Summaries "Pop Science"	Mon 11/2/98	Fri 5/28/99
258	"Initiatives" Contributions	Mon 11/2/98	Mon 11/2/98
259	EMSP Tri-Fold	Tue 11/24/98	Mon 11/30/98
260	Action Item Database Development	Mon 1/11/99	Fri 5/28/99
261	Calendar	Mon 3/15/99	Fri 3/10/00
262	**External Program Impact Activities**	**Tue 9/29/98**	**Fri 12/3/99**
263	CRB/IRB Support (FY99)	Thu 4/1/99	Wed 9/15/99
264	Program Execution Activities	Tue 6/15/99	Mon 8/9/99
265	**NAS/NRC Activities**	**Tue 9/29/98**	**Thu 12/17/98**
266	Initial NAS/NRC Briefing	Tue 9/29/98	Tue 9/29/98
267	NAS/NRC-SRS Meeting	Tue 11/10/98	Thu 11/12/98
268	NAS/NRC-Hanford Meeting	Tue 12/15/98	Thu 12/17/98
269	EMAB Reviews	Tue 9/29/98	Fri 3/19/99
270	**Annual Report to Congress (Linkage Report)**	**Sat 5/15/99**	**Fri 8/6/99**
271	Annual Report to Congress (Linkage Report) Development	Sat 5/15/99	Fri 7/9/99
272	Annual Rpt to Cong. Concurrence Outside EM	Mon 7/12/99	Fri 8/6/99
273	**Exhibitions**	**Tue 9/29/98**	**Fri 12/3/99**
274	Exhibition Support	Tue 9/29/98	Fri 9/24/99
275	Exhibition Booth Development	Thu 1/28/99	Wed 2/24/99
276	SERDP - Arlington, VA	Tue 12/1/98	Thu 12/3/98
277	TIE Conference - Chicago	Tue 10/27/98	Thu 10/29/98
278	Waste Management 99	Mon 3/1/99	Thu 3/4/99



ID	Task Name	Start	Finish
279	Techno Ventions - Orlando	Wed 12/9/98	Mon 12/14/98
280	Biomass Workshop-Bethesda	Mon 3/15/99	Tue 3/16/99
281	DOE-AL EM Needs Workshop	Wed 11/17/99	Thu 11/18/99
282	NABIR- Reston, VA	Mon 1/25/99	Wed 1/27/99
283	10th Annual Applied RD&D Technology Colloquium - Scottsdale	Tue 5/11/99	Fri 5/14/99
284	11th TIE Workshop - NV Operations	Tue 10/26/99	Thu 10/28/99
285	ANS Winter Meeting - Long Beach CA	Mon 11/15/99	Wed 11/17/99
286	SERDP - TBD (estimated dates)	Wed 12/1/99	Fri 12/3/99
287	Techno-Ventions 99 - Orlando (estimated dates)	Wed 12/1/99	Fri 12/3/99
288	ITRC - Atlantic City	Tue 4/20/99	Thu 4/22/99
289	ER-Tec - Charleston	Mon 6/7/99	Wed 6/9/99
290	Forrestall	Mon 6/28/99	Fri 7/2/99
291	Global '99 - Jackson	Sun 8/29/99	Fri 9/3/99